

Assimilative TDS Capacity in the Allegheny River At Emlenton PWS TDS Load At 50%

Q7-10 (cfs)	Monthly Q7-10 (cfs)	Multiplier	Q7-10 * (cfs)	TDS # (mg/L)	Emlenton Q7-10 (cfs)	WQS TDS (mg/L)	Total TDS Load lbs/day	TDS Load (50%) lbs/day
1,680	2,990	1.8	3,145	141	3,205	500	6,205,992	3,102,996
1,680	3,780	2.3	3,976	135	4,052	500	7,987,633	3,993,816
1,680	5,380	3.2	5,659	126	5,767	500	11,655,428	5,827,714
1,680	4,830	2.9	5,080	129	5,178	500	10,387,145	5,193,572
1,680	3,010	1.8	3,166	141	3,227	500	6,250,791	3,125,396
1,680	2,020	1.2	2,125	153	2,165	500	4,057,570	2,028,785
1,680	1,960	1.2	2,062	154	2,101	500	3,926,536	1,963,268
1,680	1,820	1.1	1,914	156	1,951	500	3,621,827	1,810,914
1,680	1,780	1.1	1,872	157	1,908	500	3,535,048	1,767,524
1,680	1,990	1.2	2,093	153	2,133	500	3,992,021	1,996,010
1,680	3,190	1.9	3,355	140	3,420	500	6,854,751	3,327,375
1,680	4,110	2.4	4,323	133	4,406	500	8,738,327	4,369,164

uses multiplier from USGS Gage 03025500 at Franklin, PA and Q7-10 at WQN 867 (Kennerdell, PA).  
assumes TDS concentration at Kennerdell, PA is equal to the TDS concentration at Emlenton PWS.

### Summary of TDS Allocations in the Allegheny River Watershed Based on Criteria

Facility Control Variable Units	Minard Oil Local/Far Field lbs/day	WT Corp. Emlenton lbs/day	Rock Well Emlenton/Local lbs/day	PA B-ROU Emlenton/Local lbs/day	Big Sandy Permitted Flow lbs/day	PA Brine Franklin Emlenton lbs/day	Allegheny Environmental Permitted Flow lbs/day	Remaining Emlenton 50% Allocation lbs/day
January	39,026	517,166	517,166	517,166	9,598	517,166	46,237	1
February	39,853	665,636	665,636	665,636	9,598	665,636	46,237	0
March	68,236	971,286	971,286	971,286	9,598	971,286	46,237	0
April	83,341	865,595	865,595	865,595	9,598	865,595	46,237	0
May	40,362	520,899	520,899	520,899	9,598	520,899	46,237	1
June	20,194	338,131	338,131	338,131	9,598	338,131	46,237	1
July	13,948	327,211	239,949	239,949	9,598	327,211	46,237	0
August	9,431	301,819	189,660	189,660	9,598	301,819	46,237	0
September	8,765	294,587	155,779	155,779	9,598	294,587	46,237	1
October	11,541	332,668	213,298	213,298	9,598	332,668	46,237	0
November	29,132	554,563	415,315	415,315	9,598	554,563	46,237	0
December	50,168	728,194	682,124	682,124	9,598	728,194	46,237	0

### Additional and Final Allocations in the Allegheny River Watershed

Facility Units	WT Corp Additional lbs/day	WT Corp. Final lbs/day	Rock Well Additional lbs/day	Rock Well Final lbs/day	PA B-ROU Additional lbs/day	PA B-ROU Final lbs/day	PA B-FRA Additional lbs/day
January	374,616	891,782	114,632	631,798	114,632	631,798	374,616
February	545,617	1,211,253	92,102	757,738	92,102	757,738	545,617
March	644,721	1,616,007	298,647	1,269,933	298,647	1,269,933	644,721
April	418,839	1,284,434	418,839	1,284,434	418,839	1,284,434	418,839
May	246,491	767,389	246,490	767,389	246,490	767,389	246,491
June	272,420	610,551	37,793	375,923	37,793	375,923	272,420
July	386,557	713,768	0	239,949	0	239,949	386,556
August	386,060	687,879	0	189,660	0	189,660	386,060
September	405,478	700,065	0	155,779	0	155,779	405,478
October	424,121	756,789	0	213,298	0	213,298	424,121
November	665,893	1,220,456	0	415,315	0	415,315	665,893
December	746,347	1,474,541	0	682,124	0	682,124	746,347

• **Waste Treatment Corporation Local Water Quality Standard and Proposed TDS WLA**

**Allegheny River**

Drainage Area At WT Corp. (Square Miles) = 3,130  
Annual Q7-10 At WT Corp. (cfs) = 889

Drainage Area At WQN 805 (Square Miles) = 3,660  
Annual Q7-10 At WQN 805 (cfs) = 1,040

**TDS AT WQN 805 (mg/L) =  $-1E-07(CFS)^2 + 0.002(CFS) + 108.95$**

**TDS At Q7-10 At WQN 805 (mg/L) = 111**

Month	Yearly Q7-10 At WH Gage (cfs)	Monthly Q7-10 At WH Gage (cfs)	Monthly Multiplier	Q7-10 At WT Corp. (cfs)	Q7-10 At WQN 805 (cfs)	TDS* (mg/L)	Local WQS TDS (mg/L)	Total TDS Load lbs/day
Jan	1,040	1,700	1.6	1,454	1,700	112	1,800	13,251,428
Feb	1,040	2,290	2.2	1,958	2,290	113	1,800	17,840,464
Mar	1,040	2,740	2.6	2,343	2,740	114	1,800	21,337,708
Apr	1,040	2,400	2.3	2,052	2,400	113	1,800	18,695,563
May	1,040	1,660	1.6	1,420	1,660	112	1,800	12,940,140
Jun	1,040	1,190	1.1	1,018	1,190	111	1,800	9,280,795
Jul	1,040	1,250	1.2	1,069	1,250	111	1,800	9,748,126
Aug	1,040	1,240	1.2	1,060	1,240	111	1,800	9,670,241
Sep	1,040	1,320	1.3	1,129	1,320	111	1,800	10,293,277
Oct	1,040	1,460	1.4	1,249	1,460	112	1,800	11,383,363
Nov	1,040	2,020	1.9	1,727	2,020	113	1,800	15,740,955
Dec	1,040	2,420	2.3	2,070	2,420	113	1,800	18,851,020

\* Assume concentration of TDS at WT Corp. is the same as the TDS Concentration at WQN 805.

- This proposed industrial facility does not require an analysis for inhibition of the treatment process through the biological reactor at this time.

- WT Corp. Water Quality Standard at the Far Field Compliance Point

**Allegheny River**

Drainage Area At WT Corp. (Square Miles) = 3,130  
Annual Q7-10 At WT Corp. (cfs) = 889

Drainage Area At WQN 867 (Square Miles) = 6,270  
Annual Q7-10 At WQN 867 (cfs) = 1,767

TDS AT WQN 867 (mg/L) =  $709.32(\text{CFS})^{-0.2002}$

TDS At Q7-10 At WQN 867 (mg/L) = 159

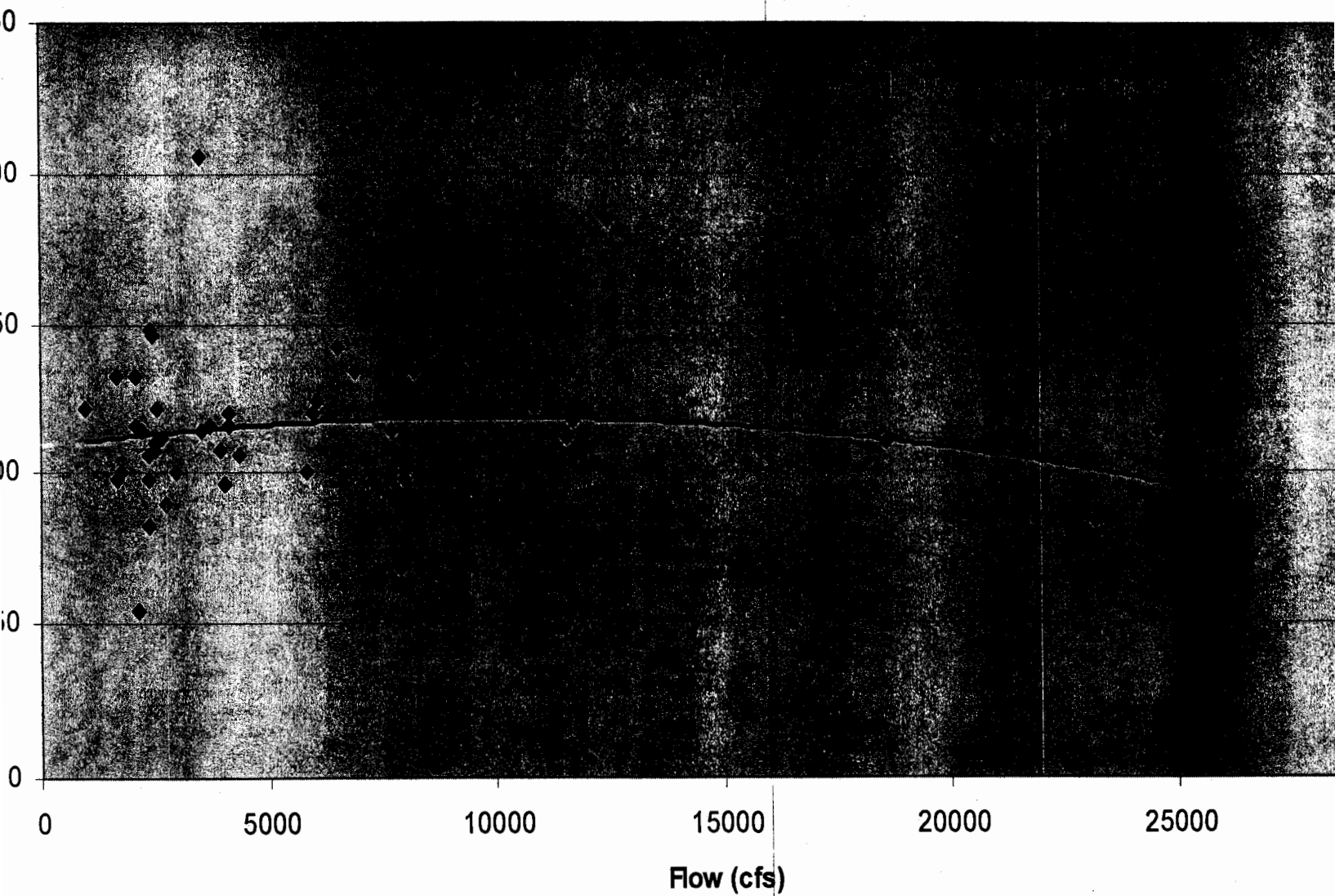
Month	Yearly Q7-10 At WQN 867 (cfs)	Monthly Q7-10 At WQN 867 (cfs)	Monthly Multiplier	Q7-10 At Emlenton PWS (cfs)	TDS* (mg/L)	Local WQS TDS (mg/L)	Total TDS Load lbs/day	TDS Load 50% lbs/day
Jan	1,767	3,145	1.8	3,205	141	500	6,205,992	3,102,996
Feb	1,767	3,976	2.3	4,052	135	500	7,987,633	3,993,816
Mar	1,767	5,659	3.2	5,767	126	500	11,655,428	5,827,714
Apr	1,767	5,080	2.9	5,178	129	500	10,387,145	5,193,572
May	1,767	3,166	1.8	3,227	141	500	6,250,791	3,125,396
Jun	1,767	2,125	1.2	2,165	153	500	4,057,570	2,028,785
Jul	1,767	2,062	1.2	2,101	154	500	3,926,536	1,963,268
Aug	1,767	1,914	1.1	1,951	156	500	3,621,827	1,810,914
Sep	1,767	1,872	1.1	1,908	157	500	3,535,048	1,767,524
Oct	1,767	2,093	1.2	2,133	153	500	3,992,021	1,996,010
Nov	1,767	3,355	1.9	3,420	140	500	6,654,751	3,327,375
Dec	1,767	4,323	2.4	4,406	133	500	8,738,327	4,369,164

\* Assumes TDS concentration at WQN 867 equals the TDS concentration at Emlenton PWS.

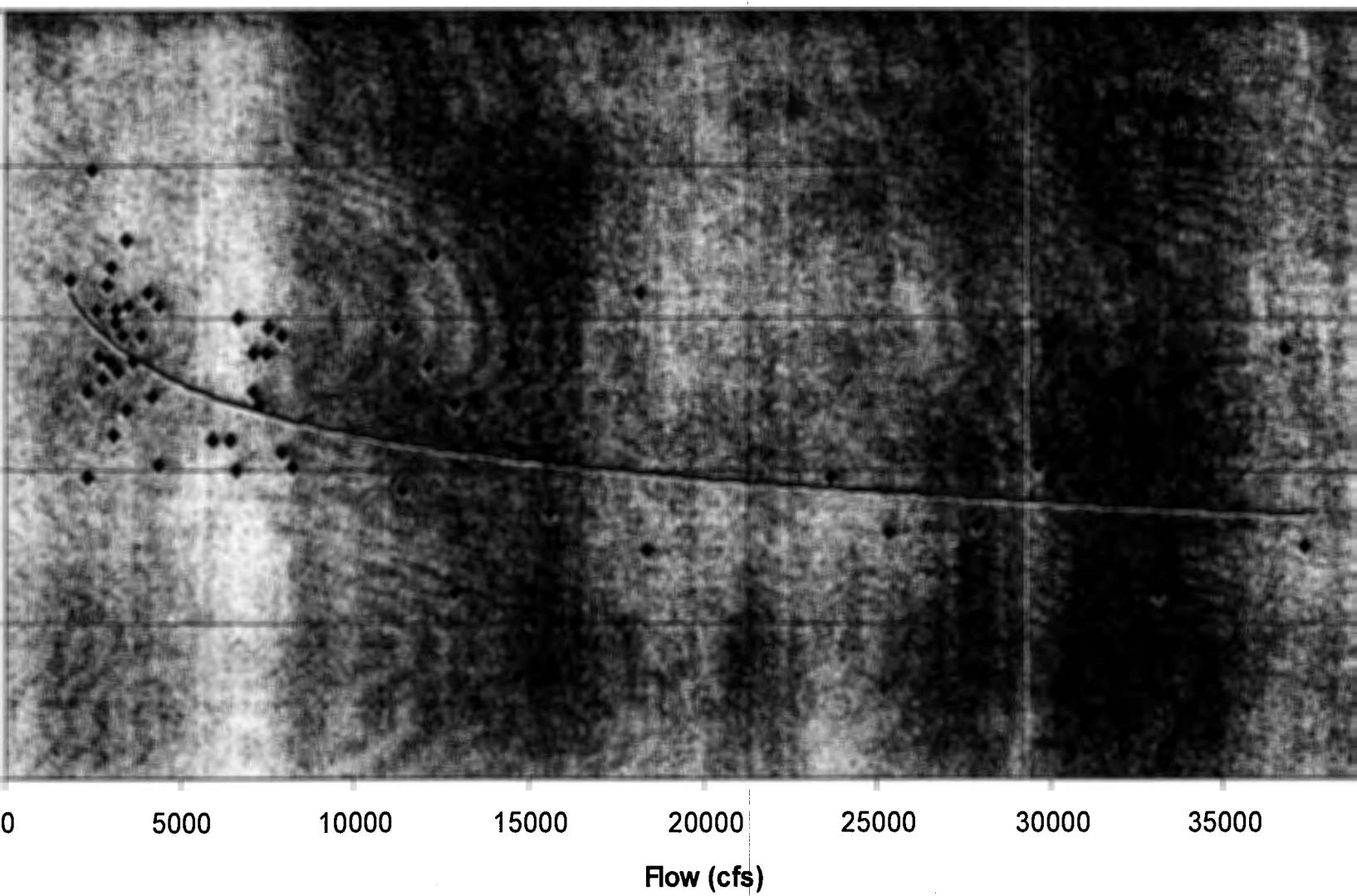
### Summary Table of TDS Control Points for WT Corp.

Month	Local WQS (lb/day)	Inhibition At Reactor (lb/day)	Stand Alone Far Field (lb/day)	Emlenton PWS Allocation (lb/day)
Jan	13,251,428	N/A	3,102,996	517,166
Feb	17,840,464	N/A	3,993,816	665,636
Mar	21,337,708	N/A	5,827,714	971,286
Apr	18,695,563	N/A	5,193,572	865,595
May	12,940,140	N/A	3,125,396	520,899
Jun	9,280,795	N/A	2,028,785	338,131
Jul	9,748,126	N/A	1,963,268	327,211
Aug	9,670,241	N/A	1,810,914	301,819
Sep	10,293,277	N/A	1,767,524	294,587
Oct	11,383,363	N/A	1,996,010	332,668
Nov	15,740,955	N/A	3,327,375	554,563
Dec	18,851,020	N/A	4,369,164	728,194

**TDS REGRESSION WQN 805 ALLEGHENY RIVER**  
**FLOW DATA FROM WEST HICKORY, PA**



**TDS REGRESSION WQN 867 ALLEGHENY RIVER**  
**FLOW DATA FROM FRANKLIN, PA**



Waste Treatment Corporation  
**2009 WQPR**  
**WQN 866 Data**  
**From 11/3/08 STORET Runs**

Activity Start	Hardness (mg/l)	Manganese (ug/l)	pH (s.u.)	Iron (ug/l)
10/7/1998 1:55	47.5416	345	6.5	197
7/7/1999 11:15	33.8052	42	6.9	78
9/15/1999 7:30	47.036	165	6.4	86
11/8/1999 2:45	49.3984	60	7.6	118
8/15/2000 2:00		227	6.6	1770
8/15/2000 2:00		29	6.7	46
8/15/2000 7:30	47.9564			
8/15/2000 7:30	39.7692			
10/12/2000 2:45	48.8628	387	6.8	459
7/10/2001 10:30	39.2588	41	6.6	81
9/11/2001 7:30	43.0416	212	6.7	173
11/6/2001 10:15	48.978	67	6.8	207
8/20/2002 11:30	41	26	7.6	66
11/18/2002 11:30	49	54	7.8	164
7/21/2003 10:30	36	412	7.2	5650
9/22/2003 12:15	34	46	7.7	169
10/27/2003 10:30	40	121	6.9	380
Average	43.0	148.9	7.0	643

Consistent with 1999 background data guidance, only data from July to November was used to represent low flow conditions.



	PARAMETER	CENT	MEDIUM
00010	WATER TEMP	FAHN	WATER
00011	WATER TEMP	FAHN	WATER
00027	COLLECT AGENCY	CODE	WATER
00060	STREAM FLOW	INST-CFS	WATER
00061	STREAM FLOW	FEET	WATER
00065	STREAM STAGE	JTU	WATER
00070	TURB	JKSN	WATER
00076	TURB TRBDIMTR	HACH FTU	WATER
00080	COLOR PT-CO	UNITS	WATER
00086	ODOR THRSN NO	AT 60C	WATER
00094	CNDUCTVY FIELD	MICROMHO	WATER
00095	CNDUCTVY AT 25C	MICROMHO	WATER
00300	DO	MG/L	WATER
00301	DO	PERCENT	WATER
00310	BOD 5 DAY	MG/L	WATER
00400	PH	SU	WATER
00403	PH	SU	WATER
00410	T ALK	CAC03	WATER
00436	ACIDITY MINERAL	MG/L	WATER
00437	ACIDITY FROM CO2	MG/L	WATER
00500	RESIDUE TOTAL	MG/L	WATER
00515	RESIDUE DISS-105 C	MG/L	WATER
00530	RESIDUE TOT NFLT	MG/L	WATER
00545	RESIDUE SETTLBLE	ML/L	WATER
00610	NH3+NH4- N TOTAL	MG/L	WATER
00612	UN-IONZD NH3-N	MG/L	WATER
00615	NO2-N TOTAL	MG/L	WATER
00619	UN-IONZD NH3-NH3	MG/L	WATER
00620	NO3-N TOTAL	MG/L	WATER

RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
	197	10.98700	68.53400	8.278500	30.0	.0	62/06/01	87/12/21
\$	197	51.77500	222.1700	14.90500	86.0	32.0	62/06/01	87/12/21
	102	4206.000	.0000000	.0000000	4206	4206	50/03/27	75/03/07
	153	10671.00	93981000	9694.400	49800	591	50/03/27	78/09/07
	184	11185.00	91369000	9558.700	48200	802	63/06/24	87/12/21
	183	5.377100	4.624000	2.150300	11.90	2.00	63/06/24	87/12/21
	99	11.83100	402.1600	20.05400	190.0	1.0	62/06/01	77/12/14
K	1	5.000000			5.0	5.0	70/03/26	70/03/26
TOT	100	11.76300	398.5700	19.96400	190.0	1.0	62/06/01	77/12/14
	52	6.163500	26.43400	5.141400	20.0	.4	78/01/16	82/04/21
	43	19.41900	78.82100	8.878100	50	5	62/06/01	72/06/21
	2	30.50000	84.50000	9.192400	37.0	24.0	71/06/22	71/09/14
	38	123.7600	2329.000	48.26000	250	60	78/01/16	87/12/21
	179	165.1600	8376.900	48.75400	460	89	69/09/29	87/12/21
	196	10.33300	5.514100	2.348200	16.6	4.1	62/06/01	87/12/21
\$	191	90.12200	202.0900	14.21600	133.0	36.2	62/06/01	87/12/21
	42	2.216100	1.570700	1.253300	6.4	.6	62/06/01	72/06/21
	202	7.477600	.294300	.5425800	9.30	6.20	62/06/01	87/12/21
	257	7.385200	.2864100	.5351700	9.1	6.1	50/03/27	87/12/21
	255	45.711400	421.7000	20.53500	147	14	50/03/27	87/12/21
L	1	1.000000			1	1	80/12/09	80/12/09
TOT	256	45.53900	427.8500	20.68500	147	1	50/03/27	87/12/21
	1	.0000000			0	0	62/06/01	62/06/01
	72	.4305600	13.34700	3.653400	31	0	50/03/27	75/03/07
	67	135.5400	2599.100	50.98100	378	66	62/06/01	79/01/10
	174	116.8000	7209.100	84.90600	1116	0	68/01/19	87/12/21
	113	18.98200	867.2500	29.45000	276	0	62/06/01	82/06/16
	25	.2401600	.0340870	.1846300	.8	.004	76/09/23	79/01/10
K	3	.1000000	.0000000	.0000000	.1	.1	78/02/02	78/07/10
TOT	28	.2251400	.0322490	.1795800	.8	.004	76/09/23	79/01/10
	167	.1074200	.0145530	.1206400	.910	.0004	72/08/04	87/12/21
K	9	.0533320	.0019749	.0444400	.100	.010	73/04/02	87/11/04
TOT	176	.1046500	.0140380	.1184800	.910	.0004	72/08/04	87/12/21
\$	154	.0019239	.0000143	.0106920	.065	.000007	72/08/04	87/12/21
	75	.0111060	.0001143	.0106920	.073	.000	72/08/04	87/12/21
K	100	.0100410	.0000033	.0018361	.020	.0001	77/05/09	87/11/04
TOT	175	.0104980	.0000503	.0071284	.073	.000	72/08/04	87/12/21
\$	154	.0023392	.0000601	.0077547	.079	.000008	72/08/04	87/12/21
	175	.4875200	.0742470	.2724800	2.160	.005	72/08/04	87/12/21

FORET RETRIEVAL DATE 99/05/04  
 ABMS0804 03025500  
 L 23 22.0 079 49 10.0 1  
 LEGHENY RVR-US RTE 322 BR AT FRANKLIN  
 PENNSYLVANIA YENANGO  
 LEGHENY RIVER 050100  
 LEGHENY RIVER  
 EPA 770419  
 100 FEET DEPTH  
 05010003004 0005.490 DN

PGH=INVENT

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/TYPA/AMBNT/STREAM/BIO

	PARAMETER	MG/L	MEDIUM
00660	ORTHOPO4 P04	MG/L P	WATER
00665	PHOS-TOT	MG/L P	WATER
00666	PHOS-DIS	MG/L P	WATER
00900	TOT HARD CAC03	MG/L	WATER
00915	CALCIUM CA-DISS	MG/L	WATER
00916	CALCIUM CA-TOT	MG/L	WATER
00925	MGNSTUM MG-DISS	MG/L	WATER
00927	MGNSTUM MG-TOT	MG/L	WATER
00945	SULFATE SO4-TOT	MG/L	WATER
00951	FLUORIDE F-TOTAL	MG/L	WATER
01002	ARSENIC AS-TOT	UG/L	WATER
01027	CADMIUM CD-TOT	UG/L	WATER
01032	CHROMIUM HEX-YAL	UG/L	WATER
01034	CHROMIUM CR-TOT	UG/L	WATER
01042	COPPER CU-TOT	UG/L	WATER
01045	IRON FE-TOT	UG/L	WATER
01051	LEAD PB-TOT	UG/L	WATER

RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
	17	.0746830	.0100570	.1002800	.30	.00	67/01/09	71/03/26
	176	.0578090	.0015499	.0393690	.270	.010	71/12/16	87/12/21
K	2	.0100000	.0000000	.0000000	.010	.010	82/05/19	83/04/24
TOT	178	.0572720	.0015580	.0394710	.270	.010	71/12/16	87/12/21
	1	.0399900			.040	.040	72/12/13	72/12/13
	218	63.81900	487.0800	22.07000	150	27	62/06/01	87/12/21
	28	16.99300	26.58300	5.155800	32.9	9.6	75/08/07	77/12/14
	148	17.72000	34.45100	5.869500	40.1	6.3	72/08/04	87/12/21
	28	4.657100	4.022500	2.005600	10.2	2.2	75/08/07	77/12/14
	148	4.554700	46.69200	6.833200	82.3	.0	72/08/04	87/12/21
	250	19.09800	525.3100	22.92000	270	5	62/06/01	87/12/21
	4	5.500000	11.00000	3.316600	296	3	50/03/27	87/12/21
K	254	18.88400	520.0200	22.80400	296	2	85/04/24	87/11/04
TOT	1	.0000000			.00	.00	50/03/27	87/12/21
	8	9.250000	4.500000	2.121300	10	4	80/09/11	87/08/17
K	1	1.000000			1	1	79/08/13	79/08/13
	13	1.400000	.8800000	.9380900	3	.2	72/08/09	87/08/17
TOT	14	.371400	.8237400	.9076000	3	.2	72/08/09	87/08/17
K	3	23.33300	533.3300	23.09400	50	10	83/08/16	86/08/19
TOT	4	14.50000	27.66700	5.259900	20	10	72/08/09	78/08/07
K	11	14.00000	156.0000	12.49000	50	4	75/08/07	87/08/17
TOT	15	14.13300	117.4100	10.83600	50	4	72/08/09	87/08/17
	9	11.88900	14.61100	3.822500	20	10	72/08/04	85/08/15
K	6	26.66700	346.6700	18.61900	50	10	73/08/02	87/08/17
TOT	15	17.80000	188.3200	13.72300	50	10	72/08/04	87/08/17
	256	738.2000	1239400	1113.300	14000	0	50/03/27	87/12/21
K	3	13.96700	36.30300	6.025200	21	10	78/08/07	86/08/19
TOT	12	18.75000	363.4800	19.06500	50	1	72/08/09	87/08/17
	15	17.79300	294.7000	17.16700	50	1	72/08/09	87/08/17

**WQPR 2009**  
**Chemical Additive Evaluation**

Additive	*	**	***	****	*****	*****
	LC <sub>50</sub> (mg/l)	AFC (mg/l)	CFC (mg/l)	In-System Concentration (mg/l)	Calculated WQ Based Limit (mg/l)	Usage Approved
SD-AG29	212	10.6	2.12	7	600.8004	YES
SEP-C8040X	12	0.6	0.12	4	34.00757	YES

\* From available toxicity data

\*\* Equal to 0.05 \* LC50

\*\*\* Equal to 0.01 \* LC50

\*\*\*\* From information supplied in application

\*\*\*\*\* From PENTOXSD results in Attachment III

\*\*\*\*\* Usage approved if in-system concentration less than calculated water quality based limit.

**Sent:** Thursday, August 20, 2009 11:29 AM  
**To:** Balog, David; Scott, Kenneth  
**Cc:** Gleeson, Robert; Whiteash, Christopher; Furlan, Ronald; Wetherell, John  
**Subject:** NWRO Permitting Strategy Doc (Revised)

Attached is the latest and hopefully the last version of this document. There were two main issues: 1) getting specific about the exclusion from the treatment standard based on management direction and practical issues; and 2) cleaning up language in the document that reflected earlier thinking and contradicted other parts of the document. I think that I have this done. We are also updating the NCRO and NERO versions.

The thing that we wanted to emphasize is how facilities that qualify for an exclusion from the 500 mg/L treatment standard should be permitted, with a year-round WLA, and deciding on that WLA may be tough given that some of these facilities were not formally permitted and did not monitor for TDS. Given those challenges, we would like to talk about what would be realistic for each facility, and do the best that we can to make sure that we won't have a problem with any new WQ criteria. It won't be good to maybe negotiate a level and then tell them 6 months later that we can't support it because of new criteria. So the question might be not whether to grandfather, but at what level to grandfather TDS loads. For POTWs, we have to decide whether to limit the lb/d of TDS that come into the facility in brine WW, or the lb/d that are present in the POTW discharge.



Permitting Strategy  
for Northw...

**Thomas Starosta, P.E.** | Environmental Engineer Consultant  
Department of Environmental Protection  
Rachel Carson State Office Building  
400 Market Street | Harrisburg, PA 17101  
Phone: 717.787.4317 | Fax: 717.772.5156  
[www.depweb.state.pa.us](http://www.depweb.state.pa.us)

To: Scott, Kenneth; Starosta, Thomas P  
Cc: Gleeson, Robert; Balog, David; Wetherell, John  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

As soon as possible as I'm tied up with other things. As stated before, nothing is changing except the title and the WQBEL data, which you already have. There is no need to wait on us to give you this document.

-----Original Message-----

From: Scott, Kenneth  
Sent: Wednesday, August 05, 2009 7:48 AM  
To: Whiteash, Christopher; Starosta, Thomas P  
Cc: Gleeson, Robert; Balog, David; Wetherell, John  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

Chris,

Do you have any thoughts on when the customized strategy referenced below will be finished? I need to get a draft Water Quality Protection Report put together for the PA Brine Rouseville Facility very soon.

Thanks,

Ken

-----Original Message-----

From: Whiteash, Christopher  
Sent: Thursday, July 30, 2009 12:31 PM  
To: Scott, Kenneth; Starosta, Thomas P  
Cc: Gleeson, Robert; Balog, David; Wetherell, John  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

I can send a customized strategy to you in a few days. In the mean time, I attached the latest one we have (not sure if it's the same as Tom's, so please discard his). This one of course is in regards to the Susquehanna where [REDACTED]

The customized strategy that I will create for your region will pretty much just have WQBEL information changed and will of course have a different title.

-----Original Message-----

From: Scott, Kenneth  
Sent: Thursday, July 30, 2009 11:46 AM  
To: Starosta, Thomas P; Whiteash, Christopher  
Cc: Gleeson, Robert; Balog, David; Wetherell, John  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

Gentlemen:

If there is a customized strategy for the Allegheny River watershed, please send it to us. Otherwise, if we are supposed to use the Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation (West Branch Susquehanna River) for permitting discharges in the Allegheny River, please clearly indicate this and send us the final version or at least let us know what version of the draft we are supposed to use.

Thanks,

Ken

-----Original Message-----

From: Starosta, Thomas P  
Sent: Wednesday, July 29, 2009 3:43 PM  
To: Scott, Kenneth  
Cc: Gleeson, Robert; Balog, David; Wetherell, John; Whiteash, Christopher  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

We were producing customized versions for each watershed as required. Maybe I got you the wrong one, or you just got the calculations as an update.

Please work out with Chris whether you need a customized version or not. Last I heard, you guys were still working out who gets what. However, the tech-based material, which is what you asked about, would not vary.

Thomas Starosta, P.E. | Environmental Engineer Consultant Department of Environmental Protection Rachel Carson State Office Building 400 Market Street | Harrisburg, PA 17101  
Phone: 717.787.4317 | Fax: 717.772.5156  
www.depweb.state.pa.us

-----Original Message-----

From: Scott, Kenneth  
Sent: Wednesday, July 29, 2009 3:29 PM  
To: Starosta, Thomas P  
Cc: Gleeson, Robert; Balog, David; Wetherell, John; Whiteash, Christopher  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

Tom,

The title of the attached strategy suggests that it is for the West Branch Susquehanna River. Are we to use this Strategy Statewide?

Thanks Again,

Ken

-----Original Message-----

From: Starosta, Thomas P  
Sent: Wednesday, July 29, 2009 12:52 PM  
To: Scott, Kenneth  
Cc: Gleeson, Robert; Balog, David; Wetherell, John; Whiteash, Christopher  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

Of course we want the same numbers for consistency and because similar situations should result in similar limits and conditions. But we are relying on a regulatory mechanism that is by definition site-specific. If you want to talk about this some more, please call me.

Attached is my latest version of the document. Chris, if you have a more recent copy, please forward. I think that at one point we declared this strategy as final, but this one is marked draft.

Sent: Wednesday, July 29, 2009 11:49 AM

To: Starosta, Thomas P  
Cc: Gleeson, Robert; Balog, David; Wetherell, John; Whiteash, Christopher  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

Tom,

I am not sure if I have the permitting strategy document that you reference. Could you please send me an electronic copy of the document?

As for BPJ being site specific, I am not sure we agree in this case since we are talking about new facilities. Afterall, wouldn't the available technology be the same no matter which region of the state a facility is located in? Furthermore, if each region has to do an independent evaluation of the appropriate technology based limits, what happens if we all develop different numbers for the same parameters? It would seem that we want to be consistent across the state and have statewide technology based limits for these similar types of facilities.

Thanks,

Ken

-----Original Message-----

From: Starosta, Thomas P  
Sent: Wednesday, July 29, 2009 10:29 AM  
To: Scott, Kenneth; Whiteash, Christopher  
Cc: Gleeson, Robert; Balog, David; Wetherell, John  
Subject: RE: Tech. Limits for PA Brine Rouseville Facility

The appropriate tech-based limits were covered in the permitting strategy document that was distributed when we met with you guys in early June. We could dig that out again if you need it. I also would recommend that you compare to the TerraAqua permit (the link to the networked file has been distributed).

There were a few minor issues as follow-up which I'm not sure got to NWRO. One was adding that alkalinity > acidity, which we agreed was appropriate. Also, somebody asked me for a better BPJ basis for the barium and strontium numbers, especially, and I produced the attached document. Since BPJ is a site-specific determination, you would have to agree and adopt the basis and rationale that I suggested for those pollutants. Alternatively, you can use your own basis.

Thomas Starosta, P.E. | Environmental Engineer Consultant Department of Environmental  
Protection Rachel Carson State Office Building 400 Market Street | Harrisburg, PA 17101  
Phone: 717.787.4317 | Fax: 717.772.5156  
www.depweb.state.pa.us

-----Original Message-----

From: Scott, Kenneth  
Sent: Wednesday, July 29, 2009 8:47 AM  
To: Starosta, Thomas P  
Cc: Gleeson, Robert; Balog, David  
Subject: Tech. Limits for PA Brine Rouseville Facility

that the technology based limits should be the same statewide for all the new facilities proposed for treating oil and gas wastewaters. Thus, we are assuming that Central Office will be providing these limits and their basis.

Thanks,

Ken Scott

Kenneth Scott | Environmental Engineer  
Department of Environmental Protection  
230 Chestnut Street | Meadville, PA 16335  
Phone: 814.332.6872 | Fax: 814.332.6121  
[www.depweb.state.pa.us](http://www.depweb.state.pa.us)







Ken,

We received the draft permit renewal for Waste Treatment Corporation on January 19, 2010. I have completed my review of this draft and have the following comments.

1) It is noted that this is an existing CWT facility with a discharge flow at 0.213 MGD treating oil & gas wastewater (non Marcellus), other metal bearing wastewater, and high BOD wastewater. This permit renewal proposes a change in the wastewater to be treated to only oil & gas wastewater, including the Marcellus, with the flow remaining at 0.213-MGD. As a result, you have made the determination that this is defined as an existing source under the April 2009 PA TDS permitting strategy and are not requiring the facility to meet the TDS (500 mg/l), Chloride (250), Sulfate (250), or Strontium (10) limits on January 1, 2011. I understand that in order to be exempt from these treatment standards, the facility must have been permitted to receive the high-TDS wastewater prior to April 2009. The average TDS load from the existing discharge is 148,276 lbs/day (about 98,226 mg/l using the ave flow of 0.181 MGD). However, with the change in the makeup of the wastewater being proposed, including the treatment of wastewater from Marcellus wells, it appears that the facility should not receive the exemption unless you can document that the new wastewater influent would not have a higher TDS component. Marcellus wastewater has the potential for higher levels of TDS (2 or more times that reported for the current discharge). EPA's opinion is that this change in the makeup of the wastewater should be considered and the standards proposed in the TDS permitting strategy should apply. Please provide documentation of the anticipated TDS influent concentrations with the proposed wastewater change.

2) I have reviewed draft permits for other facilities accepting Marcellus Shale wastewaters and those draft permits include additional parameters of concern. For example, additional parameters of concern have been identified to be ethylbenzene, toluene, xylenes, and total BTEX. The Department has documented observing the presence of BTEX parameters in flowback receipts at a number of other CWT facilities. Please include these parameters for analysis and/or monitoring, or explain why these parameters are not considered.

Prior to finalizing this permit, please address the above comments and provide me with any changes to the draft permit. In addition, please forward to me any changes to the Fact Sheet / Pollution Report / WQPR, if necessary. If you prefer, electronic versions of these documents can be sent instead of hard copies. Electronic versions of all final permit documents and Fact Sheets / Pollution Reports / WQPRs are preferred as well. Any questions, give me a call.

Thanks,  
Brian P. Trulear  
NPDES Permits Branch (3WP41)  
Office of Permits & Enforcement  
Water Protection Division  
EPA Region III  
Phone: 215-814-5723  
Fax: 215-814-2302





Cc: Balog, David <dbalog@state.pa.us>, Nagy, Christina <cnagy@state.pa.us>, "Maykowski, Robert" <rmaykowski@state.pa.us>, "Hall, Christine" <chall@state.pa.us>, "Hanna, Donald" <dohanna@state.pa.us>, "Umholtz, Joseph" <jumholtz@state.pa.us>  
Bcc:  
Subject: Waste Treatment Corporation, PA0102784 - Draft  
From: "Steel, Ruth" <rsteel@state.pa.us> - Tuesday 01/19/2010 08:37 AM

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Ken,

The above permit will go to the PA Bulletin on 1/19/10 and be published on 1/30/10.

Attached are the permit; fact sheet, PA bulletin & letter.

I will sent a copy of the application to Brian P. Trulear and a copy of the permit to Cindy Tibbot @ Fish and Wildlife Service.

Have a good day.

Ruth Steel | Permits Clerk  
Department of Environmental Protection  
NWRO | Water Quality Management  
230 Chestnut Street | Meadville, PA 16335  
Phone: 814.332.6336 | Fax: 814.332.6121  
[www.dep.state.pa.us](http://www.dep.state.pa.us)



WasteTreat10.doc



WasteTreat11.doc



WasteTreat12.doc



WasteTreat13.doc

**File located in C:\NPDES Draft Permits - Electronic\PA\Waste Treatment Corporation (PA0102784)**



**From:** McFadden, Angela  
**Sent:** Friday, May 31, 2013 10:28 AM  
**To:** tstarosta@state.pa.us  
**Subject:** 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom,

I really appreciate your taking time to talk with me yesterday. Here is the list of facilities that the gas operators named as destinations for O&G wastewater sent to "centralized treatment plant for recycle" in 2012. Can you please confirm which of these facilities are zero-discharge and for that reason not permitted under NPDES?

thanks,

Angela

Advanced Waste Services  
Appalachian Water Services LLC (Ronco)  
Aquatic Synthesis Unlimited  
Armstrong Environmental Services  
Blazek Pump and Well  
Cares McKean Water Treatment & Recycling Facility  
Central Ohio Oil, Inc.  
Chemtron - Plant 1  
Clean Streams, LLC  
Danco Industries Treatment Facility  
Eureka Resources  
Hart Resource Technologies  
Hydro Recovery - Blossburg  
Lorco Petroleum Services  
McCutcheon Enterprise  
PA Brine Treatment Inc. - Franklin  
PA Brine Treatment Inc. - Josephine  
Patriot Water Treatment  
Petrowater Inc.  
Reserved Environmental Services  
Seneca Resources Owls Next Burner Unit  
Somerset Regional Water/Susquehanna Beneficial Reuse Facility  
Terraqua Resource Management  
Triad Hunter - Warren Disposal #1  
Tunnelton Liquids  
Waste Recovery Solutions  
Waste Treatment Corporation

1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

From: Kenneth L. Scott, P.E. *KLS*  
Environmental Engineer  
Oil & Gas Management

Thru: Brian Babb  
Technical Services Chief  
Oil & Gas Management *B*

Re: Waste Treatment Corporation  
NPDES PA0102784  
Warren, Warren County

On March 24, 2011, David Balog and Kenneth Scott of the Department met with Mike Arnold and Steve Arnold of Waste Treatment Corporation (WTC) and their consultant, David Belcastro, to discuss WTC's comments concerning the draft NPDES permit mailed to WTC on December 30, 2010.

To begin the meeting, a copy of the comment letter received from the U.S. Fish and Wildlife Service on March 7, 2011 was provided to WTC. It was explained that EPA has indicated that the Fish and Wildlife Service's comments, regarding protection of federally listed endangered mussels in the vicinity of WTC's outfall, will need to be resolved before the final permit is issued. Potential issues with conducting a survey as requested by Fish and Wildlife Service were discussed. Furthermore, the possibility of running some form of WET testing to address the Fish and Wildlife Service's concerns was also briefly discussed.

WTC raised concerns regarding the TDS load limits proposed in the draft permit. Department staff explained that the load limits in the latest draft permit were calculated using the weekly TDS data provided by WTC. WTC indicated that they will exceed the proposed monthly average limits if included in the permit and that it will not allow them to operate at the levels that they previously operated. WTC also questioned why their limits were more stringent than those included in PA Brine's permit. The Department explained that WTC's permit limit for TDS have to be set based on their existing load prior to August 21, 2010 and not on that of PA Brine. WTC agreed that they would provide additional data to justify TDS limits that would allow them to operate at previously authorized levels.

WTC raised concerns with the BOD limits contained in the draft permit. Specifically, WTC indicated that BOD can not be accurately measured in their discharge due to the high TDS concentrations. WTC indicated that both sampling they have conducted and available literature support this argument. It was agreed that WTC should contact EPA to discuss the applicability of BOD limits to oil and gas wastewater discharges. The

limits from the Organics Subcategory of the Centralized Waste Treatment Effluent Limitation Guidelines but that would consider changing the applicable subcategory to either Metals or Oil and Grease if WTC submitted data to justify such a change.

WTC raised concerns regarding the WET Testing requirements contained in the draft permit. The Department explained that the WET Testing was included to help address the unknowns related to the wastewaters that they accept. It was further explained that the WET Testing will help them to show that their discharge is not affecting aquatic life in the river. WTC questioned whether the WET Testing requirement could be reduced to annually. It was explained that the generally recommended sampling frequency is once per quarter so to reduce the frequency further would be difficult to justify. Furthermore, it was explained that more WET Testing requirements may have to be included in the permit, rather than less, to address the Fish and Wildlife Service's concerns. For example, the USFWS has suggested that both acute and chronic testing be required.

WTC raised concerns regarding the amount of new monitoring contained in the draft permit and the corresponding increase in monitoring costs. WTC indicated that their monitoring cost would increase approximately 200% based on the proposed permit requirements. The Department indicated that a reduction in the sampling frequency for specific parameters would be entertained if specifically requested with sufficient basis. For example, it was agreed that the Department would consider reducing the sampling frequency for the organics that were added to the permit as a result of applying the effluent limitation guidelines for centralized waste treatment facilities if WTC had data from prior sampling which indicated that these parameters were not present in their wastewater.

WTC raised concerns regarding the Instantaneous Maximum Limits that were contained in the draft permit. Specifically, WTC raised concerns regarding the correctness of having Instantaneous Maximum Limits equal to the Daily Maximum Limits. It was explained by the Department representatives that Instantaneous Maximum Limits are calculated by multiplying Monthly Average Limits by 2.5 except where the Daily Maximum Limit is greater than 2.5 times the Monthly Average Limit. For those cases where the Daily Maximum Limit is greater than 2.5 times the Average Monthly Limit, it was explained that the Instantaneous Maximum Limit is set equal to the Daily Maximum Limit. It was agreed that the Department would verify with other regions how Instantaneous Maximum Limits are calculated when the Daily Maximum Limit is greater than 2.5 times the Monthly Average. Furthermore, it was explained that the Department would consider using site specific multipliers to calculate more appropriate Instantaneous Maximum Limits if WTC provided data to support such multipliers.

WTC raised multiple concerns regarding Special Condition #4 of the draft permit which will require submittal of the "Supplemental Report Hauled in Residual Wastes".

Specifically, WTC raised concerns regarding the amount of time and resources that will



be required to provide the requested reports and the additional liability that they will incur by submitting information that they can not verify and insure is accurate. As an alternative, WTC indicated that they could supply the Department with copies of the paper manifests that they receive with each load of wastewater. The Department representatives indicated that this condition is currently being evaluated by the Department.

WTC raised concerns regarding the 0.04 mg/l acrylamide limit included in the draft permit since it was equal to the detection limit of 0.04 mg/l reported by their laboratory. The Department explained that WTC should report less than results as such on their monthly DMR's, and that we do not have flexibility to change a limit because it is close or equal to the detection limit.

At the conclusion of the meeting, the Department explained that it had received WTC's recent letter indicating that they had removed a clarifier from their treatment system and that WTC should request a minor modification to their Water Quality Management (WQM) Permit to reflect this change. WTC agreed to submit this request for a minor modification to their WQM permit within the next couple of weeks with copies of the stamped plans reflecting the changes.

cc: Mike Arnold – Waste Treatment Corporation  
D. Balog  
J. Holden  
C. Lobins  
File

PROGRAM WQ

FILE NAME Waste Trnt Corp

SHEDDOWN Familias

TYPE NPDIS

COUNTY Worcester MUNICIPALITY

COMMENTS PA0102784

**From:** McFadden, Angela  
**Sent:** Tuesday, June 04, 2013 5:45 PM  
**To:** Starosta, Thomas P  
**Cc:** Balog, David; Randis, Thomas; Furlan, Ronald; Leone, Donald  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"  
**Attachments:** PA O&G WW treatment facilities - 2012.xlsx

Tom,

Excellent - attached is a new summary incorporating the status for PA facilities based on the permit codes. We have information about the NPDES-permitted facilities, so it's really the facilities now labeled "no discharge" that I'm looking to confirm are really zero discharge and not IUs of some kind. Based on the permit code, I'm thinking Danco is a zero discharge facility (though name is similar to Dannick, which is an IU I believe) and labeled it as such.

Also it would be good to know whether the mobile treatment unit did discharge and if so whether it met the 500 mg/l TDS limit in Chapter 95.

I'm around every day this week, and can give you a call to go over specifics for any of these facilities.

Thank you,

Angela

Angela McFadden

U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

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**From:** Starosta, Thomas P [mailto:tstarosta@pa.gov]  
**Sent:** Tuesday, June 04, 2013 1:36 PM  
**To:** McFadden, Angela  
**Cc:** Balog, David; Randis, Thomas; Furlan, Ronald; Leone, Donald  
**Subject:** FW: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Angela: Let me answer your question generally and then we can maybe look at individual facilities. My interest in this is identifying discharge facilities that aren't supposed to be accepting natural gas wastewater, or they are taking Marcellus wastewater when they are not supposed to. I am copying some DEP people to let them know that we are looking at some facilities in their region.

- If they have a permit number of 'PA' followed by seven numeric digits, it is a discharge permit. Looking this list over, that rule holds true.
- If they have a permit number of 'WMGR' followed by alpha and numeric digits, it is permitted under a solid waste permit, which USUALLY will mean a zero liquid discharge (ZLD), non-discharge facility. The thing that can go wrong with that is that some facilities may have permit coverage from both our waste and water programs. However, in those cases, those facilities will USUALLY be Chapter 95-complaint, which means that their discharge is TDS<500 mg/L. So you have to dig pretty hard to find a problem at a WMGR facility and, looking this list over, I don't see any.
- That leaves mostly some permits that start with PAR or PAD. This is a case-by-case evaluation. Some of these are indirect discharges to POTWs (ADVANCED WASTE SERVICES OF PA (NEW CASTLE), DANCO INDUSTRIES TRMT FAC, ARMSTRONG ENVIRONMENTAL SERVICES) and others that I don't recognize (WEAVERTOWN ENVIRONMENTAL GROUP, which looks like a stormwater discharge).
- Also left over are some indeterminate facilities, plus a landfill or two. In the past when I have investigated these, I found that they hadn't used the right permit number, or in the case of landfills we are talking about solid waste disposal (such as drill cuttings).

In terms of my interest, I do see some potential problems, so I'll be looking into those. Not necessarily problems, mind you, because some of these facilities take natural gas WW, treat it, and then give it back, so it doesn't end up in their discharge. If the list says CENTRALIZED TREATMENT PLANT FOR RECYCLE, then it may be exactly that:

CENTRALIZED TREATMENT PLANT FOR RECYCLE	PAR000519462	ADVANCED WASTE SERVICES OF PA (NEW C
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Some on the other hand look to be most likely a problem. However, sometimes they can be mistakes, so I usually look for repeat shipments on the list.

PUBLIC SEWAGE TREATMENT PLANT	PA0026310	CLEARFIELD MUNICIPAL SEWAGE TREATMEI
PUBLIC SEWAGE TREATMENT PLANT	PA0025984	ALCOSAN SEWAGE SYSTEM

From more specifics, you would have to tell me what facility or facilities that you are most interested in. I see all of the usual players here on the list that you have provided.

---

**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]

**Sent:** Tuesday, June 04, 2013 10:40 AM

**To:** Starosta, Thomas P

**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom, my apologies - here's a summary created from the 2012 26R data files, with treatment/recycling facilities sorted by state, including addresses and permit numbers.

There are two lists, one for "conventional" and one for "non-conventional". (As I understand it, for the purpose of the 26R reports conventional includes CBM and unconventional is Marcellus only.)

Thanks so much for taking time to review this stuff to help us ensure our facts are straight. It'll be extremely helpful as we interact with EPA headquarters regarding regulation of O&G wastewater.

Angela

215-814-2324

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**From:** Starosta, Thomas P [<mailto:tstarosta@pa.gov>]  
**Sent:** Friday, May 31, 2013 10:59 AM  
**To:** McFadden, Angela  
**Cc:** Furlan, Ronald  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Angela: Is this all that you have from the reports? No permit numbers or address or town?

Also, does this list reflect a single wastestream from Marcellus or non-Marcellus? For instance, maybe this list was produced for fracturing fluid from Marcellus operations.

I recognize maybe half of these, but they will be difficult to fully characterize in some cases without additional info. Some of these may not even be in PA, some look to be disposal wells, and some as I recall accept only solid wastes. If you have the 26R report, I would like to see the records highlighted – then I would have all available info. For instance, the first entity is Advanced Waste Services, an indirect discharge to New Castle POTW. They have told us that they don't receive any wastewater from natural gas operations, so I would like to look at that.

---

**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]  
**Sent:** Friday, May 31, 2013 10:28 AM  
**To:** Starosta, Thomas P  
**Subject:** 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom,

I really appreciate your taking time to talk with me yesterday. Here is the list of facilities that the gas operators named as destinations for O&G wastewater sent to "centralized treatment plant for recycle" in 2012. Can you please confirm which of these facilities are zero-discharge and for that reason not permitted under NPDES?

thanks,

Angela

Advanced Waste Services  
Appalachian Water Services LLC (Ronco)  
Aquatic Synthesis Unlimited  
Armstrong Environmental Services

Hart Resource Technologies  
Hydro Recovery - Blossburg  
Lorco Petroleum Services  
McCutcheon Enterprise  
PA Brine Treatment Inc. - Franklin  
PA Brine Treatment Inc. - Josephine  
Patriot Water Treatment  
Petrowater Inc.  
Reserved Environmental Services  
Seneca Resources Owls Next Burner Unit  
Somerset Regional Water/Susquehanna Beneficial Reuse Facility  
Terraqua Resource Management  
Triad Hunter - Warren Disposal #1  
Tunnelton Liquids  
Waste Recovery Solutions  
Waste Treatment Corporation  
Weavertown Environmental Group

Angela McFadden

U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

**From:** McFadden, Angela  
**Sent:** Wednesday, June 05, 2013 9:33 AM  
**To:** Furlan, Ronald  
**Cc:** Starosta, Thomas P  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Great – thanks!

---

**From:** Furlan, Ronald [mailto:rfurlan@pa.gov]  
**Sent:** Wednesday, June 05, 2013 9:32 AM  
**To:** McFadden, Angela  
**Cc:** Starosta, Thomas P  
**Subject:** FW: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

FYI  
R

**Ronald C. Furlan PE**/Environmental Program Manager,  
Pa Department of Environmental Protection,  
Planning and Permits Division,  
Bureau of Point and Non-Point Source Management,  
Rachel Carson State Office Building,  
P.O. Box 8774,  
Harrisburg, PA 17105-8774  
V 717-783-2283 F 717-772-5156  
[rfurlan@pa.gov](mailto:rfurlan@pa.gov)

---

**From:** Carlson, Todd  
**Sent:** Wednesday, June 05, 2013 9:22 AM  
**To:** Furlan, Ronald; Womer, Dwayne  
**Cc:** Fair, Joel; Balog, David  
**Subject:** FW: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

We believe Dwayne is correct that the Danco "number" is for a RW generator.  
Interestingly, they do have an application pending with us to treat some O&G wastewater, as noted in Joel's e-mail below.

**Todd Carlson** | Program Manager  
Department of Environmental Protection | Waste Management Program  
Northwest Regional Office  
230 Chestnut Street | Meadville, PA 16335  
Phone: 814.332.6819 | Fax: 814.332.6117

---

**From:** Fair, Joel  
**Sent:** Wednesday, June 05, 2013 9:01 AM

if they did get their permit application approved, they would be a zero discharge facility;  
excess heat from current operations to evaporate wastewaters.

**Joel Fair** | Environmental Engineer Manager  
Department of Environmental Protection | Waste Program  
Northwest Regional Office  
230 Chestnut Street | Meadville, PA 16335  
Phone: 814-332-6841 | Fax: 814-332-6117  
[www.depweb@state.pa.us](mailto:www.depweb@state.pa.us)

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**From:** Furlan, Ronald  
**Sent:** Tuesday, June 04, 2013 6:27 PM  
**To:** McFadden, Angela  
**Cc:** Balog, David; Randis, Thomas; Leone, Donald; Starosta, Thomas P; Womer, Dwayne; Carlson, Todd  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

I suspect that the DANCO INDUSTRIES PARW00001645 may be an old EPA HW transporters license number? Mr. Womer or Mr. Carlson any idea? The facility address location of Harrisville is in Butler County, David Balog sound familiar?

**Ronald C. Furlan PE**/Environmental Program Manager,  
Pa Department of Environmental Protection,  
Planning and Permits Division,  
Bureau of Point and Non-Point Source Management,  
Rachel Carson State Office Building,  
P.O. Box 8774,  
Harrisburg, PA 17105-8774  
V 717-783-2283 F 717-772-5156  
[rfurlan@pa.gov](mailto:rfurlan@pa.gov)

---

**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]  
**Sent:** Tuesday, June 04, 2013 5:45 PM  
**To:** Starosta, Thomas P  
**Cc:** Balog, David; Randis, Thomas; Furlan, Ronald; Leone, Donald  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom,

Excellent - attached is a new summary incorporating the status for PA facilities based on the permit codes. We have information about the NPDES-permitted facilities, so it's really the facilities now labeled "no discharge" that I'm looking to confirm are really zero discharge and not IUs of some kind. Based on the permit code, I'm thinking Danco is a zero discharge facility (though name is similar to Dannick, which is an IU I believe) and labeled it as such.

Also it would be good to know whether the mobile treatment unit did discharge and if so whether it met the 500 mg/l TDS limit in Chapter 95.

I'm around every day this week, and can give you a call to go over specifics for any of these facilities.

Thank you.



U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

---

**From:** Starosta, Thomas P [<mailto:tstarosta@pa.gov>]  
**Sent:** Tuesday, June 04, 2013 1:36 PM  
**To:** McFadden, Angela  
**Cc:** Balog, David; Randis, Thomas; Furlan, Ronald; Leone, Donald  
**Subject:** FW: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Angela: Let me answer your question generally and then we can maybe look at individual facilities. My interest in this is identifying discharge facilities that aren't supposed to be accepting natural gas wastewater, or they are taking Marcellus wastewater when they are not supposed to. I am copying some DEP people to let them know that we are looking at some facilities in their region.

First, if they are in OH, NJ, or WV, and as a PA guy, I don't have anything to say about them. That looks to be about 20% of your list, and probably some of the highest volume facilities. One exception that I will say something about: Patriot Water Treatment in Warren OH, is an 0.1 MGD indirect discharge to Warren POTW (Ohio), and that comes right back to PA via the Mahoning River. But they limit their TDS to 50,000 mg/L, which is pretty moderate as these things go.

Some general rules for PA facilities:

- If they have a permit number of 'PA' followed by seven numeric digits, it is a discharge facility. Looking this list over, that rule holds true.
- If they have a permit number of 'WMGR' followed by alpha and numeric digits, it is permitted under a solid waste permit, which USUALLY will mean a zero liquid discharge (ZLD), non-discharge facility. The thing that can go wrong with that is that some facilities may have permit coverage from both our waste and water programs. However, in those cases, those facilities will USUALLY be Chapter 95-complaint, which means that their discharge is TDS<500 mg/L. So you have to dig pretty hard to find a problem at a WMGR facility and, looking this list over, I don't see any.
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- Also left over are some indeterminate facilities, plus a landfill or two. In the past when I have investigated these, I found that they hadn't used the right permit number, or in the case of landfills we are talking about solid waste disposal (such as drill cuttings).

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CENTRALIZED TREATMENT PLANT FOR RECYCLE

PAR000519462

ADVANCED WASTE SERVICES OF PA (NEW C

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**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]

**Sent:** Tuesday, June 04, 2013 10:40 AM

**To:** Starosta, Thomas P

**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom, my apologies - here's a summary created from the 2012 26R data files, with treatment/recycling facilities sorted by state, including addresses and permit numbers.

There are two lists, one for "conventional" and one for "non-conventional". (As I understand it, for the purpose of the 26R reports conventional includes CBM and unconventional is Marcellus only.)

Thanks so much for taking time to review this stuff to help us ensure our facts are straight. It'll be extremely helpful as we interact with EPA headquarters regarding regulation of O&G wastewater.

Angela

Angela McFadden

U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

---

**From:** Starosta, Thomas P [<mailto:tstarosta@pa.gov>]

**Sent:** Friday, May 31, 2013 10:59 AM

**To:** McFadden, Angela

**Cc:** Furlan, Ronald

**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Angela: Is this all that you have from the reports? No permit numbers or address or town?

Also, does this list reflect a single wastestream from Marcellus or non-Marcellus? For instance, maybe this list was produced for fracturing fluid from Marcellus operations.

I recognize maybe half of these, but they will be difficult to fully characterize in some cases without additional info. Some of these may not even be in PA, some look to be disposal wells, and some as I recall accept only solid wastes. If you have the 26R report, I would like to see the records highlighted - then I would have all available info. For instance, the first entity is Advanced Waste Services, an indirect

**To:** Starosta, Thomas P

**Subject:** 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom,

I really appreciate your taking time to talk with me yesterday. Here is the list of facilities that the gas operators named as destinations for O&G wastewater sent to "centralized treatment plant for recycle" in 2012. Can you please confirm which of these facilities are zero-discharge and for that reason not permitted under NPDES?

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Angela

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Blazek Pump and Well  
Cares McKean Water Treatment & Recycling Facility  
Central Ohio Oil, Inc.  
Chemtron - Plant 1  
Clean Streams, LLC  
Danco Industries Treatment Facility  
Eureka Resources  
Hart Resource Technologies  
Hydro Recovery - Blossburg  
Lorco Petroleum Services  
McCutcheon Enterprise  
PA Brine Treatment Inc. - Franklin  
PA Brine Treatment Inc. - Josephine  
Patriot Water Treatment  
Petrowater Inc.  
Reserved Environmental Services  
Seneca Resources Owls Next Burner Unit  
Somerset Regional Water/Susquehanna Beneficial Reuse Facility  
Terraqua Resource Management  
Triad Hunter - Warren Disposal #1  
Tunnelton Liquids  
Waste Recovery Solutions  
Waste Treatment Corporation  
Weavertown Environmental Group



**From:** McFadden, Angela  
**Sent:** Friday, June 07, 2013 11:14 AM  
**To:** Starosta, Thomas P; Furlan, Ronald  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom, much thanks – will give you a call later today.

I guess we'll have some facilities not showing up on the list if O&G producers didn't report sending waste there. Will be sure to consolidate this list with the NPDES permits & IUs we are aware of.

Angela

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**From:** Starosta, Thomas P [<mailto:tstarosta@pa.gov>]  
**Sent:** Friday, June 07, 2013 11:11 AM  
**To:** McFadden, Angela; Furlan, Ronald  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Well, I was assuming that DANCO was Dannic Company, the indirect discharges to Punxsutawney and/or Brockway. Those guys have got to appear somewhere in the 26R reports.

Angela, as far as what else that you need, I think that you should give me a call and we can go through them. I have various degrees of certainty regarding each facility.

I was able to confirm that New Castle POTW is accepting brine again (although unclear if it is hauled-in or the AWS indirect discharge, or both) and should be on your list.

---

**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]  
**Sent:** Wednesday, June 05, 2013 9:33 AM  
**To:** Furlan, Ronald  
**Cc:** Starosta, Thomas P  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Great – thanks!

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**From:** Furlan, Ronald [<mailto:rfurlan@pa.gov>]  
**Sent:** Wednesday, June 05, 2013 9:32 AM  
**To:** McFadden, Angela  
**Cc:** Starosta, Thomas P  
**Subject:** FW: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

FYI  
R

**Ronald C. Furlan PE**/Environmental Program Manager,

**From:** Carlson, Todd

**Sent:** Wednesday, June 05, 2013 9:22 AM

**To:** Furlan, Ronald; Womer, Dwayne

**Cc:** Fair, Joel; Balog, David

**Subject:** FW: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

We believe Dwayne is correct that the Danco "number" is for a RW generator.

Interestingly, they do have an application pending with us to treat some O&G wastewater, as noted in Joel's e-mail below.

**Todd Carlson** | Program Manager

Department of Environmental Protection | Waste Management Program

Northwest Regional Office

230 Chestnut Street | Meadville, PA 16335

Phone: 814.332.6819 | Fax: 814.332.6117

---

**From:** Fair, Joel

**Sent:** Wednesday, June 05, 2013 9:01 AM

**To:** Carlson, Todd

**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Danco Industries does not have a permit. They have an application in since 2009. This is the site we just sent the intent to deny letter out. Therefore, they really should not be taking any waste for treatment. They may be a transporter, but should not be treating at this point.

If they did get their permit application approved, they would be a zero discharge facility. They intend to use excess heat from current operations to evaporate wastewaters.

**Joel Fair** | Environmental Engineer Manager

Department of Environmental Protection | Waste Program

Northwest Regional Office

230 Chestnut Street | Meadville, PA 16335

Phone: 814-332-6841 | Fax: 814-332-6117

[www.depweb@state.pa.us](mailto:www.depweb@state.pa.us)

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**From:** Furlan, Ronald

**Sent:** Tuesday, June 04, 2013 6:27 PM

**To:** McFadden, Angela

**Cc:** Balog, David; Randis, Thomas; Leone, Donald; Starosta, Thomas P; Womer, Dwayne; Carlson, Todd

**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

I suspect that the DANCO INDUSTRIES PARW00001645 may be an old EPA HW transporters license number? Mr. Womer or Mr. Carlson any idea? The facility address location of Harrisville is in Butler County, David Balog sound familiar?

**Ronald C. Furlan PE**/Environmental Program Manager,

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**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]  
**Sent:** Tuesday, June 04, 2013 5:45 PM  
**To:** Starosta, Thomas P  
**Cc:** Balog, David; Randis, Thomas; Furlan, Ronald; Leone, Donald  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

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I'm around every day this week, and can give you a call to go over specifics for any of these facilities.

Thank you,

Angela

Angela McFadden

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Philadelphia, PA 19103-2029

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**Sent:** Tuesday, June 04, 2013 1:36 PM  
**To:** McFadden, Angela  
**Cc:** Balog, David; Randis, Thomas; Furlan, Ronald; Leone, Donald  
**Subject:** FW: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

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CENTRALIZED TREATMENT PLANT FOR RECYCLE	PAR000519462	ADVANCED WASTE SERVICES OF PA (NEW C
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Some on the other hand look to be most likely a problem. However, sometimes they can be mistakes, so I usually look for repeat shipments on the list.

PUBLIC SEWAGE TREATMENT PLANT	PA0026310	CLEARFIELD MUNICIPAL SEWAGE TREATMEI
PUBLIC SEWAGE TREATMENT PLANT	PA0025984	ALCOSAN SEWAGE SYSTEM

From more specifics, you would have to tell me what facility or facilities that you are most interested in. I see all of the usual players here on the list that you have provided.

---

**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]

**Sent:** Tuesday, June 04, 2013 10:40 AM

**To:** Starosta, Thomas P

**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom, my apologies - here's a summary created from the 2012 26R data files, with treatment/recycling facilities sorted by state, including addresses and permit numbers.

There are two lists, one for "conventional" and one for "non-conventional". (As I understand it, for the purpose of the 26R reports conventional includes CBM and unconventional is Marcellus only.)

Thanks so much for taking time to review this stuff to help us ensure our facts are straight. It'll be extremely helpful as we interact with EPA headquarters regarding regulation of O&G wastewater.

Angela



215-814-2324

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**From:** Starosta, Thomas P [<mailto:tstarosta@pa.gov>]  
**Sent:** Friday, May 31, 2013 10:59 AM  
**To:** McFadden, Angela  
**Cc:** Furlan, Ronald  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Angela: Is this all that you have from the reports? No permit numbers or address or town?

Also, does this list reflect a single wastestream from Marcellus or non-Marcellus? For instance, maybe this list was produced for fracturing fluid from Marcellus operations.

I recognize maybe half of these, but they will be difficult to fully characterize in some cases without additional info. Some of these may not even be in PA, some look to be disposal wells, and some as I recall accept only solid wastes. If you have the 26R report, I would like to see the records highlighted – then I would have all available info. For instance, the first entity is Advanced Waste Services, an indirect discharge to New Castle POTW. They have told us that they don't receive any wastewater from natural gas operations, so I would like to look at that.

---

**From:** McFadden, Angela [<mailto:McFadden.Angela@epa.gov>]  
**Sent:** Friday, May 31, 2013 10:28 AM  
**To:** Starosta, Thomas P  
**Subject:** 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"

Tom,

I really appreciate your taking time to talk with me yesterday. Here is the list of facilities that the gas operators named as destinations for O&G wastewater sent to "centralized treatment plant for recycle" in 2012. Can you please confirm which of these facilities are zero-discharge and for that reason not permitted under NPDES?

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Angela

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Armstrong Environmental Services

Hart Resource Technologies  
Hydro Recovery - Blossburg  
Lorco Petroleum Services  
McCutcheon Enterprise  
PA Brine Treatment Inc. - Franklin  
PA Brine Treatment Inc. - Josephine  
Patriot Water Treatment  
Petrowater Inc.  
Reserved Environmental Services  
Seneca Resources Owls Next Burner Unit  
Somerset Regional Water/Susquehanna Beneficial Reuse Facility  
Terraqua Resource Management  
Triad Hunter - Warren Disposal #1  
Tunnelton Liquids  
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Waste Treatment Corporation  
Weavertown Environmental Group

Angela McFadden

U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

**From:** McFadden, Angela  
**Sent:** Monday, July 22, 2013 9:49 AM  
**To:** kathleen\_patnode@fws.gov  
**Cc:** Hakowski, Denise  
**Subject:** citizen NOI - Waste Treatment Corp.

In case you haven't seen this yet

<http://www.cleanwateraction.org/press/legal-action-announced-against-wastewater-plant-stop-illegal-discharges-drilling-wastewater>

[http://www.cleanwateraction.org/files/publications/WTC\\_NOI\\_FINAL7-18-13.pdf](http://www.cleanwateraction.org/files/publications/WTC_NOI_FINAL7-18-13.pdf)

Angela McFadden

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1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

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**From:** McFadden, Angela  
**Sent:** Tuesday, June 04, 2013 10:40 AM  
**To:** Starosta, Thomas P  
**Subject:** RE: 2012 O&G wastewater disposal - reported disposal via "centralized treatment plant for recycle"  
**Attachments:** 2012 PA O&G WW disposal via treatment facility with or without discharge.xlsx

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Angela McFadden

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Waste Treatment Corporation  
Weavertown Environmental Group







The statewide environmental organization, which filed the lawsuit Monday in U.S. District Court for the Western District of Pennsylvania in Erie, said the company has violated its discharge permit limits more than 400 times since 2010.

Despite those violations, and the ongoing 200,000-gallon-a-day discharge of drilling wastewater containing 125,000 pounds of salt, the state Department of Environmental Protection has not taken any effective action to stop the pollution, said Myron Arnowitt, Clean Water Action state director.

"You hear all the time that gas drilling wastewater doesn't end up in our rivers anymore. However, this is one case in which it clearly is," Mr. Arnowitt said.

A 2012 DEP study, cited in the lawsuit filing, found levels of chloride, bromide, lithium, strontium, radium-226 and radium-228 downriver from the plant that were more than 100 times higher than those found upriver from the plant.

The Allegheny River is the drinking water source for several public water suppliers, including the Pittsburgh Water and Sewer Authority, which has 400,000 customers.

The Waste Treatment Corp. treatment plant was one of 16 water treatment plants that were asked by then DEP Secretary Michael Krancer and Gov. Tom Corbett in April 2011 to "voluntarily" stop disposing of drilling wastewater. The DEP had said that all complied, including the eight of those discharging upriver from Pittsburgh's drinking water intake pipe in Aspinwall.

Gary Clark, a spokesman in DEP's Northwest Regional office, declined to comment Monday for legal reasons. Waste Treatment Corp. could not be reached for comment.

Mr. Arnowitt said his organization filed the 19-page complaint under the "citizen suit" provisions of the federal Clean Water Act and the Endangered Species Act, after giving the company and the DEP the required 60-day "notice of intent to sue" in July.

The DEP filed a legal action -- a Praecipe of Writ of Summons -- in Commonwealth Court on the 60th day after CWA filed its 60-day notice, but it contains no details about charges being pursued by the state.

Mr. Arnowitt, and Steve Hvozdoch, CWA's Marcellus Campaign coordinator, said the DEP filing was an attempt to delay action while discussions with the company continue.

"One of the reasons we decided to proceed with our suit is because DEP seems more concerned with negotiating a deal with the company than protecting the public," Mr. Hvozdoch said. "It's important that WTC stop accepting natural gas drilling wastewater while the legal process unfolds and that any resolution to the situation ensures the protection of the Allegheny River."

Waste Treatment is operating under a 2003 permit that did not authorize the discharge of oil and gas wastewater, although the company did inform the DEP it was doing so, including wastewater from Marcellus Shale gas drilling operations.

Angela McFadden

U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

**Sent:** Thursday, October 31, 2013 3:02 PM  
**To:** Lee McDonnell  
**Cc:** McFadden, Angela; Trulear, Brian; Price-Fay, Michelle; Harsh, Chad  
**Subject:** FW: FYI - Clean Water Action lawsuit against Waste Treatment Corp.

Lee,

We probably should talk about the status of this permit and Consent Decree. We had an internal discussion here and we need to be sure that any draft permit is acceptable to EPA or else we could wind up triggering ESA consultations with FWS. Basically, any federal action (in this case it could be an objection) if it effects an endangered species requires sign-off from FWS. This could also extend to resolution of the objection. We have gone through this process before and it is extremely time-consuming and thorough.

Given that we have a study by FWS, we need to be sure that the limits in the permit are consistent with the study findings so as to avoid an objection. So let's find some time to discuss. In advance, would you have a draft of the permit and CD and their schedule for issuance. We would prefer a predraft so we are not doing a formal review.

David

David B. McGuigan, Ph.D.  
Office of NPDES Permits and Enforcement  
Tel: 215-814-2158  
Cell: 215-514-9651

---

**From:** McFadden, Angela  
**Sent:** Tuesday, October 29, 2013 9:55 AM  
**To:** Harsh, Chad; Crane, Rebecca; Gold, Peter; Price-Fay, Michelle; McGuigan, David; Capacasa, Jon  
**Subject:** FYI - Clean Water Action lawsuit against Waste Treatment Corp.

## **Federal lawsuit: Plant discharging drilling waste**

**2 lines of 22 pt across 1 cols yy**

October 28, 2013 11:41 PM  
By Don Hopey / Pittsburgh Post-Gazette

Clean Water Action has filed a federal lawsuit against Waste Treatment Corp., alleging the commercial water treatment facility in Warren is illegally discharging gas drilling wastewater containing high levels of salts, heavy metals and radioactive compounds into the Allegheny River.

The statewide environmental organization, which filed the lawsuit Monday in U.S. District Court for the Western District of Pennsylvania in Erie, said the company has violated its discharge permit limits more than 400 times since 2010.

and radium-228 downriver from the plant that were more than 100 times higher than those found upriver from the plant.

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Waste Treatment is operating under a 2003 permit that did not authorize the discharge of oil and gas wastewater, although the company did inform the DEP it was doing so, including wastewater from Marcellus Shale gas drilling operations.

That permit was administratively extended twice by the department, each for five years.

The last extension is scheduled to expire this year.

Angela McFadden

U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)

**Sent:** Wednesday, November 06, 2013 2:51 PM  
**To:** Mcdonnell, Lee  
**Subject:** RE: FYI - Clean Water Action lawsuit against Waste Treatment Corp.

Well I have a 3:30 to 4:30 today, but our discussion should not take too long. Are you available before 3:30 today or after 4:15 – I will shorten my meeting. Friday – I am on the road.

David B. McGuigan, Ph.D.  
Office of NPDES Permits and Enforcement  
Tel: 215-814-2158  
Cell: 215-514-9651

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**From:** Mcdonnell, Lee [mailto:lmcdonnell@pa.gov]  
**Sent:** Wednesday, November 06, 2013 2:48 PM  
**To:** McGuigan, David  
**Subject:** RE: FYI - Clean Water Action lawsuit against Waste Treatment Corp.

Are you in on Friday (1-2 or after 3:15)? Or do you have time around 3:30 today?

Lee A. McDonnell, P.E. | Director  
Bureau of Point & Non-Point Source Management Department of Environmental Protection  
Rachel Carson State Office Building | Harrisburg, PA 17105-8774  
717-787-5017 (phone) | 717-772-5156 (fax) [www.depweb.state.pa.us](http://www.depweb.state.pa.us)

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**From:** McGuigan, David [mailto:McGuigan.David@epa.gov]  
**Sent:** Wednesday, November 06, 2013 2:20 PM  
**To:** Mcdonnell, Lee  
**Subject:** FW: FYI - Clean Water Action lawsuit against Waste Treatment Corp.

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---

**From:** McGuigan, David  
**Sent:** Thursday, October 31, 2013 3:02 PM  
**To:** Lee Mcdonnell  
**Cc:** McFadden, Angela; Trulear, Brian; Price-Fay, Michelle; Harsh, Chad  
**Subject:** FW: FYI - Clean Water Action lawsuit against Waste Treatment Corp.

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---

**From:** McFadden, Angela  
**Sent:** Tuesday, October 29, 2013 9:55 AM  
**To:** Harsh, Chad; Crane, Rebecca; Gold, Peter; Price-Fay, Michelle; McGuigan, David; Capacasa, Jon  
**Subject:** FYI - Clean Water Action lawsuit against Waste Treatment Corp.

## Federal lawsuit: Plant discharging drilling waste

2 lines of 22 pt across 1 cols yy

October 28, 2013 11:41 PM  
By Don Hopey / Pittsburgh Post-Gazette

Clean Water Action has filed a federal lawsuit against Waste Treatment Corp., alleging the commercial water treatment facility in Warren is illegally discharging gas drilling wastewater containing high levels of salts, heavy metals and radioactive compounds into the Allegheny River.

The statewide environmental organization, which filed the lawsuit Monday in U.S. District Court for the Western District of Pennsylvania in Erie, said the company has violated its discharge permit limits more than 400 times since 2010.

Despite those violations, and the ongoing 200,000-gallon-a-day discharge of drilling wastewater containing 125,000 pounds of salt, the state Department of Environmental Protection has not taken any effective action to stop the pollution, said Myron Arnowitt, Clean Water Action state director.

"You hear all the time that gas drilling wastewater doesn't end up in our rivers anymore. However, this is one case in which it clearly is," Mr. Arnowitt said.

A 2012 DEP study, cited in the lawsuit filing, found levels of chloride, bromide, lithium, strontium, radium-226 and radium-228 downriver from the plant that were more than 100 times higher than those found upriver from the plant.

The Allegheny River is the drinking water source for several public water suppliers, including the Pittsburgh Water and Sewer Authority, which has 400,000 customers.

The Waste Treatment Corp. treatment plant was one of 16 water treatment plants that were asked by then DEP

Clean Water Act and the Endangered Species Act, after giving the company and the DEP the required 60-day "notice of intent to sue" in July.

The DEP filed a legal action -- a Praecipe of Writ of Summons -- in Commonwealth Court on the 60th day after CWA filed its 60-day notice, but it contains no details about charges being pursued by the state.

Mr. Arnowitz, and Steve Hvozdoch, CWA's Marcellus Campaign coordinator, said the DEP filing was an attempt to delay action while discussions with the company continue.

"One of the reasons we decided to proceed with our suit is because DEP seems more concerned with negotiating a deal with the company than protecting the public," Mr. Hvozdoch said. "It's important that WTC stop accepting natural gas drilling wastewater while the legal process unfolds and that any resolution to the situation ensures the protection of the Allegheny River."

Waste Treatment is operating under a 2003 permit that did not authorize the discharge of oil and gas wastewater, although the company did inform the DEP it was doing so, including wastewater from Marcellus Shale gas drilling operations.

That permit was administratively extended twice by the department, each for five years.

The last extension is scheduled to expire this year.

Angela McFadden

U.S. Environmental Protection Agency, Region III  
Water Protection Division  
1650 Arch Street (3WP00)  
Philadelphia, PA 19103-2029

215-814-2324

**To:** Price-Fay, Michelle  
**Cc:** boornazian, linda  
**Subject:** NFWS concerns

Michelle and Ev,

Jon raised today that there are NFWS concerns about mussels in the Allegheny River and the impact of brine disposal upon them. I asked at the meeting what particular facilities where of concern, one was identified as being the Waste Treatment Corp.

Ev – you work with NFWS often, do you have a contact and could you give them a call to identify the facilities of concern. Michele are any of these subject to our or the states enforcement?

Thanks  
David

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Office of NPDES Permits and Enforcement  
Tel: 215-814-2158  
Cell: 215-514-9651



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Angela McFadden

U.S. Environmental Protection Agency, Region III  
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215-814-2324



and each testing event.

In addition to the chemical analyses required above, those parameters listed in PART A of the NPDES permit for the outfall(s) tested will be analyzed concurrently with the WET Test by using the method specified in the NPDES permit or, if not specified, by using EPA methods at 40 CFR Part 136; Standard Methods for the Examination of Water and Wastewater, American Public Health Association; and approved methods cited in 25 PA Code Chapter 16; Water Quality Toxics Management Strategy, Statement of Policy.

G. Acute Toxicity Test Report Elements

At a minimum, the following must be reported with each acute WET test:

1. General description of the acute test condition and other information as listed in Section E, Test Conditions (above).
2. Description of sample collection procedures and sampling location.
3. Names of individuals collecting and transporting samples; times and dates of sample collections.
4. Description, time and date of sample renewals.
5. All chemical and physical data including method detection levels and observations made on the species. The acute WET test hardness shall be reported with each test.
6. Copies of raw data sheets and/or bench sheets with data entries and signatures.
7. All observations or test conditions affecting the test outcome. All type I or type II errors must be explained.
8. If the WET Test was determined to be invalid, a detailed explanation explaining the basis for this determination needs to be provided.

The following acute WET test data are required in any acute test report:

1. The calculation of the LC50 value, confidence limits and regression line equation.
2. Water chemistry parameters for controls and all effluent test concentrations. (Acute test temperature is 25 +/- 1 degrees C)

H. Submission of Test Reports

The permittee shall submit copies of all acute WET test reports to DEP and EPA at the addresses listed below within 30 days of the test completion.

Department of Environmental Protection  
Oil and Gas Management  
Northwest Regional Office  
230 Chestnut Street  
Meadville, PA 16335

US Environmental Protection Agency  
Region III – EAPD, Aquatic Biology Group  
1060 Chapline St., Suite 303  
Wheeling, WV 26003-2995

**Waste Treatment Corporation – 2009 WQPR Addendum  
Acute In-stream Waste Concentration (IWCa) Calculations**

Facility Information:

Facility/Case Name: **Waste Treatment Corporation**

NPDES Permit Number: **PA0102784**

Receiving Stream or Waterbody: **Allegheny River**

Design discharge flow (Qd): **0.213 MGD (0.3296 cfs)**

Stream flow (7Q10): **889 cfs** (from PENTOXSD results)

Acute partial mix factor (PMFa): **0.032** (From PENTOXSD)

Calculations:

$$IWCa = [Qd / (7Q10 * PMFa + Qd)] * 100 \%$$

$$IWCa = [0.3296 \text{ cfs} / (889 \text{ cfs} * 0.032 + 0.3296 \text{ cfs})] * 100 \%$$

$$IWCa = 1.15 \%$$





**Sent:** Tuesday, August 11, 2009 2:38 PM  
**To:** Balog, David; Scott, Kenneth; Pesek, Adam; McCauley, Stephen; Mentzer, William; Hutchinson, Robert  
**Cc:** Gilson, Ricardo; Wetherell, John; Starosta, Thomas P  
**Subject:** High TDS Strategy

Attached is the following:

Spreadsheet containing the final allocations to the NWRO facilities. Please ensure this matches your numbers



NWRO Assimilative  
Capacity Ana...

A Powerpoint presentation that contains any and all regressions performed to help determine the correct strategy for the NWRO facilities.



TDS  
gressions.ppt (322 k)

Additional documents that you may need.



Supplemental DMR Receipt of Residual  
Condition(5\_0... Waste.doc ...

Tom and I are still in the process of perfecting the narrative strategy for your region. The strategy should be the last document you may need and hopefully, we can send it to you tomorrow.



Site	USGS Station	Drainage / Relative Capacity Sulfate lb/d (sq mi)	Chlorides Logarithmic Regression mg/L	WQS Chlorides mg/L	Assimilative Capacity Chlorides lb/d
<b><u>Minard Run Oil Company</u></b>					
Foster Brook, PA	-	123	-	-	-
Salamanca, NY	3011020	1,610	-	-	-
Kinzua Creek at Guffey, PA	3011800	38.7	-	-	-
Minard Run Oil Company, Lewis Run	-	8.98	-	-	-
<b><u>Allegheny River Watershed</u></b>					
Conewango Creek at Russell, PA	-	815	-	-	-
Allegheny River at Warren, PA	-	2,220	-	-	-
Allegheny River at West Hickory, PA	3016000	3,660	-	-	-
Oil Creek at Rouseville, PA	3020500	283	-	-	-
Allegheny River at Franklin, PA	3025500	5,960	-	-	-
Allegheny River at Kennerdell, PA	-	6,270	-	-	-
Allegheny River at Emlenton, PA PWS	-	6,390	-	-	-



## **Administrative Controls & Acronyms**

It is essential that central office, the regions, and each permit writer be working from the same tablet. Spreadsheets need to be established in a network location showing the allocations:

- Available (based on the assimilative capacity at a PWS)
- Assigned (based on the number of facilities and the allocation calculation)
- Actual (based on factoring in other limitations and considerations)

### **List of Acronyms**

AMD	Abandoned Mine Drainage
AML	Average Monthly Limit
BAMR	Bureau of Abandoned Mine Reclamation (DEP)
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
cfs	Cubic feet per second
CO	Central Office
COD	Chemical Oxygen Demand
CWT	Centralized Wastewater Treatment (facility)
DMR	Discharge Monitoring Reports
ELG	Effluent Limitation Guideline
GUDI	Groundwater Under the Direct Influence of Surface Water
IW	Industrial Wastewater (treatment facility)
M&R	Monitor and Report
MDL	Maximum Daily Limit
MGD	Million Gallons per Day
PENTOXSD	PENnsylvania TOXics Single Discharge (mathematical model)
POTW	Publicly-owned Treatment Works (sewage treatment facility)
PWS	Potable Water Supply (drinking water treatment facility)
Q7-10	Seven-day, 10-year low flow (river or stream flow)
TKN	Total Kjeldahl Nitrogen
WET	Whole Effluent Toxicity
WLA	Wasteload Allocation
WQBEL	Water Quality-based Effluent Limit
WQM	Water Quality Management (permit)
WQN	Water Quality Network (sample stations)

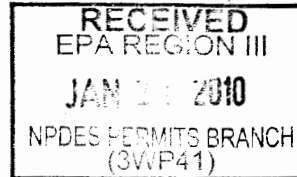


Northwest Regional Office

MEADVILLE, PA 16335-0401  
JAN 19 2010

814-332-6942  
Fax: 814-332-6121

Mr. Michael E. Arnold  
Waste Treatment Corporation  
P.O. Box 1550  
Warren, PA 16365



Re: Industrial Waste  
Waste Treatment Corporation  
Application No. PA0102784  
APS ID No. 660397  
City of Warren, Warren County

Dear Mr. Arnold:

We have prepared the enclosed draft National Pollutant Discharge Elimination System (NPDES) permit for review and comment.

Also enclosed are copies of a public notice that we will publish in the Pennsylvania Bulletin. You are required, by Department regulations, to post copies of this notice near the entrance to your property and near the discharge site. These postings shall remain for 30 days.

Please review the draft permit carefully. Your written comments on the draft permit, if received within 30 days of publication in the Pennsylvania Bulletin, will be considered during preparation of the final permit.

Sincerely,

A handwritten signature in black ink, appearing to read "K. L. Scott".

Kenneth L. Scott  
Environmental Engineer  
Oil and Gas Management

Enclosures

cc: EPA Region III (w/copy of permit)  
Cindy Tibbott - Fish and wildlife Service (w/copy of permit)  
J. Umholtz - BOGM  
R. Furlan - BWSFR (w/copy of permit)  
D. Duffy - OCC  
M. Braymer - OCC  
D. Balog - NWRO  
C. Nagy - NWRO  
R. Maykowski - Warren





**AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES**

**NPDES PERMIT NO: PA0102784**

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 *et seq.* ("the Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 *et seq.*,

**Waste Treatment Corporation  
P.O. Box 1550  
Warren, PA 16365**

is authorized to discharge from a facility known as **Waste Treatment Corporation**, located at **341 West Harmar Street, Warren, PA 16365**, in the **City of Warren, Warren County** to the **Allegheny River** in Watershed **16-B** in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B and C hereof.

**THIS PERMIT SHALL BECOME EFFECTIVE ON**

**THIS PERMIT SHALL EXPIRE AT MIDNIGHT ON**

The authority granted by this permit is subject to the following further qualifications:

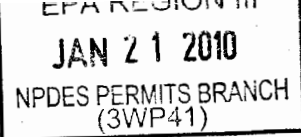
1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.
2. Failure to comply with the terms, conditions, or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. 40 CFR 122.41(a)
3. A complete application for reissuance of this permit, or notice of intent to cease discharging by the expiration date, must be submitted to DEP at least 180 days prior to the above expiration date (unless permission has been granted by DEP for submission at a later date), using the appropriate NPDES permit application form. 40 CFR 122.41(b) 122.41(d)

In the event that a timely and complete application for reissuance has been submitted and DEP is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports (DMRs), will be automatically continued and will remain fully effective and enforceable against the discharger until DEP takes final action on the pending permit application. 25 Pa. Code 92.9

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

**DRAFT**





Worksheet 3  
Prepared: KLS  
Date: 9/14/2009

1. Case Name: Waste Treatment Corporation Permit No.: PA0102784  
Municipality: City of Warren County: Warren
2. Outfalls: 001  
USGS Quad: Warren Latitude: 41° 50' 19" Longitude: 79° 9' 41"
3. Name of Receiving Stream: Allegheny River Drainage List: Q  
Designated Uses: Statewide Plus WWF (Warm Water Fish)  
Existing Use: WWF (Warm Water Fish)  
Exceptions to Specific Criteria: Add None Delete None  
☒ Perennial Stream  
Gage Name: USGS Gage #03016000 Q<sub>7-10</sub> at Gage 1040 cfs Yield rate 0.284 cfs  
☐ Dry / Intermittent Stream  
☐ Impoundment  
Nearest Downstream Use: Aqua Pennsylvania – Emlenton  
Location: Approximately 99 miles downstream of the discharge on the Allegheny River at Emlenton
4. Receiving Stream is Tributary to: Ohio River Drainage List: W  
Designated Uses: Statewide Plus WWF (Warm Water Fish) – Add N (Navigation)  
Exception to Specific Criteria: Add see 93.9w Delete: See 93.9w
5. Downstream Impoundment Impacted by Discharge: None  
Distance Below Discharge: N/A Location: N/A  
Size: N/A Volume: N/A Retention Period: N/A at stream flow N/A
6. Basis for determining instream background concentrations: \_\_\_\_\_

Generally assumed zero for parameters with no data available. Used average from WQN 866 for iron, manganese, pH, and hardness. Used average from WQN 804 for chlorides. Used 1998-2008 Logarithmic Regression Data provided by Central Office – Water Quality for TDS and sulfate.

7.

Specific SubstanceRequirements to meet Water Quality Standards

Limits are in mg/l unless otherwise noted

Monthly Ave.	Ave. Weekly	Daily Max.	Int. Max.
--------------	-------------	------------	-----------

a. See pages 5 and 6 of attached WQPR.

b.

c.

d.

e.

f.

g.

h.

i.

j.

k.

l.

m.

n.

o.

p.

q.

XX – Monitor and Report

## 8. Comprehensive Planning and Water Quality Management Requirements:

☒ Project Conforms☐ Project does not conform; explain on separate attached sheet to reference other documents under remarks.

## 9. Remarks:

**APPROVALS**

10. Review Permits/OG

Kurt L. SmithDate 9/14/09

Chief Permits/OG

Robert N. GlenDate 10/22/09





## WATER QUALITY PROTECTION REPORT

This application is for renewal and modification of Waste Treatment Corporation's (WTC's) existing NPDES permit. While their existing permit authorized the treatment and discharge of oil & gas wastewater, other metal bearing wastewater, and high BOD wastewater; by this application, WTC is proposing that they will only accept oil and gas wastewaters, including that from "Marcellus wells". Since the "high BOD" wastewater will no longer be accepted, the two internal outfalls are no longer needed and all monitoring and effluent limits will be applicable at Outfall 001.

Furthermore, as part of this application, Waste Treatment Corporation originally requested to increase their maximum allowable discharge rate to 400,000 gallons per day. This increase request has since been withdrawn per a June 23, 2009 letter from the applicant. The applicant is now proposing to continue operating at the previously permitted maximum discharge rate of 213,000 gallons per day. This discharge rate was used in the modeling and is therefore recommended for inclusion in the permit.

### **LIMIT DEVELOPMENT**

#### **DETERMINATION OF STREAM CHARACTERISTICS:**

The drainage area above the discharge (3130 square miles) is from the previous WQPR. The  $Q_{(7-10)}$  low flow yield is based on data from USGS Station 3016000 on the Allegheny River at West Hickory as indicated in the TDS Wasteload Allocation (WLA) calculations (see Attachment V). River mile index (RMI) values and elevations are estimates from the applicable topographic maps.

#### **PARAMETERS OF CONCERN:**

Available discharge data is tabulated in Attachment I. Of the parameters with available data: calcium, sodium, magnesium, hardness, TOC, COD, and specific conductance are used as indicators only; oil & grease, TSS, acidity, and pH have technology-based limits only; lithium, bromide, chromium, and MBAS have no applicable criteria; and color, fecal coliform, tin, titanium, molybdenum, and phosphorus are not considered parameters of concern for oil and gas wastewater discharges. Meanwhile, beryllium, fluoride, nitrate-nitrite, total residual chlorine, sulfide, sulfite, and total cyanide were not detected in the wastewater. Thus, further evaluation for these parameters was not performed.

While discharge data for osmotic pressure was provided in the permit application, modeling for this parameter was not performed since the TDS WLA calculations generated cooperatively with Central Office – Water Quality (see Attachment V) used an 1800 mg/l criterion for TDS as a surrogate for the 50 mOs/kg osmotic pressure criterion in Chapter 93.

Furthermore, modeling for alkalinity was not performed since the discharge's minimum alkalinity is expected to be greater than the minimum of 20 mg/l allowed by Chapter 93.

1. Discharge concentrations - summarized in Table #1
  - Based on application data, DMR data, existing water quality based limits, Department sampling, and applicable technology-based limits (see Attachment's I and II)
2. Background concentrations - summarized in Table #1
  - Assumed zero for all parameters except pH, hardness, TDS, sulfate, manganese, iron, and chlorides
  - For pH, iron, manganese, and hardness based on WQN 866 data (see Attachment VI)
  - For chlorides based on WQN 804 data (see Attachment VI-A)
  - For sulfate and TDS used Logarithmic Regression data from WQN 867 and WQN 805 as provided by Central Office - Water Quality (see Attachment V)
3. Water Quality Criteria
  - From Chapters 16 and 93 of the Regulations.
  - For chemical additives based on LC<sub>50</sub> data (see Attachment VII).
  - For acrylamide used CRL criterion provided by Central Office per 9/3/2003 e-mail (see Attachment IX)
  - For radioactivity (total alpha & beta) and total radium used Ohio River Valley Water Sanitation Commission's criteria (see Attachment XII)

#### EVALUATION SUMMARY:

Since this is an existing facility and the applicant is proposing to only accept oil and gas wastewaters, the technology-based limits oil & grease, total suspended solids (TSS), acidity, and pH listed in the Oil & Gas Wastewater Permitting Manual are recommended for the subject discharge. Furthermore, the BPJ technology-based effluent limits for barium, total iron, and manganese developed by Central Office - Water Quality (see Attachment VIII which contains the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation and related e-mails) are recommended for the permit since based on available effluent data the permittee should be able to meet these limits. Conversely, it is questionable whether the permittee will be able to meet the technology based limits for strontium and ammonia developed by Central Office-Water Quality (see Attachment VIII) by installing economically feasible treatment. Therefore, only monitor and report requirements are recommended for these parameters. Finally, as indicated in the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation and the attached e-mail correspondence (see Attachment IX), EPA has determined that facilities such as this should be subject to the technology based effluent limits for the Subpart C - Organics Treatment and Recovery Subcategory of the Centralized Wastewater Treatment Facilities ELGs in 40 CFR 437.31. Thus, these limits which are listed in the attached Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation are recommended for inclusion in the permit.

Table 2 summarizes the results of the water quality modeling (PENTOXSD printouts = Attachment III, WQM 7.0 printouts = Attachment IV, and TDS WLA calculations = Attachment V). Pursuant to the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation, if the discharge concentration used in the modeling exceeds 10 % of the calculated water quality based limit, Table 2 indicates the possible need for a limit. The evaluations for those



#### CADMIUM EVALUATION:

Since the WQBEL for cadmium in the existing permit is lower than the WQBEL calculated by PENTOXSD, new effluent limits for this parameter are not recommended. However, since the cadmium limits in the existing permit have been consistently achieved, the limits from the existing permit are recommended for the new permit.

#### ACRYLAMIDE EVALUATION:

Since the calculated WQBEL for acrylamide is less than both the existing acrylamide limit and the maximum acrylamide concentration detected in the discharge as indicated in the submitted DMRs, new WQBELs for acrylamide are recommended for the new permit. The permittee should be able to comply with these new limits since the amount of acrylamide in the wastewater can be controlled by limiting the amount of the acrylamide based treatment chemical used in the treatment process.

#### COPPER EVALUATION:

While the copper concentration used in the modeling exceeds 10 % of the calculated WQBEL for this parameter, WQBELs for this parameter are not recommended since the discharge concentration used in the modeling is equal to the technology based limit for copper recommended for inclusion in the NPDES permit. This technology based limit is from Subpart C - Organics Treatment and Recovery Subcategory of the Centralized Wastewater Treatment Facilities ELGs in 40 CFR 437. Based on past DMR data, the permittee should be able to meet these technology based limits for copper.

#### SILVER, LEAD, AND ALUMINUM EVALUATIONS:

While the silver, lead, and aluminum concentrations used in the modeling exceed 10 % of the calculated WQBELs for these parameters, WQBELs for these parameters are not recommended since the discharge concentrations used in the modeling, which are maximums from the available DMR data, are significantly less than 50% of the calculated WQBELs. Conversely, monthly monitoring for silver, lead, and aluminum are recommended to collect data for future permitting in accordance with the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation.

#### BENZENE EVALUATION:

While the discharge concentration used in the modeling for benzene exceeds 10% of the calculated water quality based limit for this parameter, water quality based effluent limits (WQBELs) for this parameter are not recommended since the discharge concentration used in the modeling represents untreated wastewater and does not exceed 50% of the calculated limits. Conversely, monthly monitoring for benzene is recommended to characterize the discharge for future permitting in accordance with the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation.

## SELENIUM EVALUATION:

While the discharge concentration used in the modeling for selenium exceeds 10% of the calculated water quality based limit for this parameter, water quality based effluent limits (WQBELs) for this parameter are not recommended since the maximum concentration from years of available DMR data is less than 50% of the calculated limits. Conversely, monthly monitoring for selenium is recommended to characterize the discharge for future permitting in accordance with the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation.

## RADIOACTIVITY AND RADIUM EVALUATION:

While the radioactivity detected in the applicant's analysis of the wastewater is expected to be from NORM (Naturally Occurring Radioactive Material) and no water quality criteria are listed in Chapters 93 or 16 for radioactivity or radium, the need for water quality based limits for radioactivity and radium were conservatively evaluated by adding radioactivity (total alpha & beta) and total radium to PENTOXSD and modeling the discharge using the Ohio River Valley Water Sanitation Commission's criteria (see Attachment XII) for these parameters as THH criteria. As indicated in Table 2, water quality based limits for radioactivity and radium are not needed since the limits calculated in the modeling are significantly higher than the levels detected in the applicant's analysis results.

## TDS, SULFATE, CHLORIDE, AND PHENOLICS EVALUATION:

According to Chapter 96, the human health criteria for TDS, sulfate, chloride, and phenolics apply at the nearest existing or proposed downstream potable water supply intake. In this case, the criteria apply at the Aqua Pennsylvania - Emlenton withdrawal, which is located approximately 99 miles below the point of discharge.

To insure that the cumulative load from all the permitted and proposed oil and gas wastewater discharges in the watershed will not cause the applicable human health criteria for chloride, sulfate, or phenolics to be exceeded at the water supply withdrawal in Emlenton, mass balance calculations for these parameters were performed (see Table 3 and Attachment X). Since the calculated maximum allowable loads are greater than twice the total discharge loads for sulfate, chloride, and phenolics above the water supply withdrawal at Emlenton, water quality based limits are not needed to protect the human health criteria for these parameters at the nearest downstream water supply. However, to collect data for future permitting, weekly monitoring for chloride and sulfate is recommended for inclusion in the permit consistent with the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation.

Meanwhile, to prevent this existing CWT facility from increasing their existing TDS discharge load above that in existence prior to April 1, 2009, new TDS load limits equal to the "baseline loading" discharged under the existing permit are recommended for the

Natural Gas Drilling in the Marcellus Shale Formation. This baseline loading was derived by using the chloride and flow data submitted in the January 2005 to March 2009 DMRs to calculate a chloride load for each month. Then, the TDS to chloride ratio, which is the average ratio from the effluent data provided with the application (see Attachment I), was used to convert this chloride load to a monthly TDS load (see Attachment XI). The average of the monthly TDS loads is recommended as the monthly average limit and the maximum of the monthly TDS loads is recommended as the daily maximum limit.

In addition, to insure that the human health criterion for TDS will be met at the nearest downstream water supply withdrawal and that the aquatic life criterion for osmotic pressure will be protected in the Allegheny River, TDS waste load allocation (WLA) calculations (see Attachment V) were generated cooperatively with Central Office-Water Quality to determine the necessary TDS load limits as outlined in the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Shale Formation. These load limits are not recommended for the new permit, however, since the "baseline loading" that is recommended as limits in the permit are smaller than any of the calculated monthly TDS load limits.

### PERMIT RECOMMENDATIONS

The following interim limits and monitoring requirements are recommended for inclusion in Part A of the permit.

<u>Parameter</u>	<u>Limits</u>		
Flow	0.213 mgd and 148 gpm max.		
Oil & Grease	PA Tech 15 mg/l ave.	30 mg/l I-max.	
TSS	PA Tech 30 mg/l ave.	60 mg/l I-max.	
BOD5	ELW 53 mg/l max.	163 mg/l max.	163 mg/l I-max.
Iron (total)	3 mg/l ave.	6 mg/l max.	7.5 mg/l I-max.
Barium (total)	TDS Strat 10 mg/l ave.	20 mg/l max.	25 mg/l I-max.
Manganese (total)	2 mg/l ave.	4 mg/l max.	5 mg/l I-max.
Copper	ELW 0.757 mg/l ave.	0.865 mg/l max.	1.893 mg/l I-max.
Zinc	✓ 0.420 mg/l ave.	0.497 mg/l max.	1.05 mg/l I-max.
Acetone	✓ 7.97 mg/l ave.	30.2 mg/l max.	30.2 mg/l I-max.
Acetophenone	✓ 0.0562 mg/l ave.	0.114 mg/l max.	0.141 mg/l I-max.
2-Butanone	✓ 1.85 mg/l ave.	4.81 mg/l max.	4.81 mg/l I-max.
o-Cresol	✓ 0.561 mg/l ave.	1.92 mg/l max.	1.92 mg/l I-max.
p-Cresol	✓ 0.205 mg/l ave.	0.698 mg/l max.	0.698 mg/l I-max.
Phenol	✓ 1.08 mg/l ave.	3.65 mg/l max.	3.65 mg/l I-max.
Pyridine	✓ 0.182 mg/l ave.	0.37 mg/l max.	0.455 mg/l I-max.
2,4,6-Trichlorophenol	✓ 0.106 mg/l ave.	0.155 mg/l max.	0.265 mg/l I-max.
Cadmium	Existing 0.049 mg/l ave.	0.098 mg/l max.	0.123 mg/l I-max.
Acrylamide	Water Pentox 0.022 mg/l ave.	0.044 mg/l max.	0.055 mg/l I-max.
TDS	Baseline/Ave 148,276 lbs/day ave.	333,007 lbs/day max.	
Acidity	PA Tech Less than Alkalinity		

Lead	Monitor and Report (monthly)
Aluminum	Monitor and Report (monthly)
Benzene	Monitor and Report (monthly)
Selenium	Monitor and Report (monthly)
Sulfate	Monitor and Report (weekly)
Chloride	Monitor and Report (weekly)
pH	6 to 9 standard units @ all times

Note: The "max." limits listed above are daily maximums while the "I-max." limits are instantaneous maximums. Other than the "I-max." limits for Oil & Grease, the permit should indicate that the other "I-max." limits are for Department use only.

The following special conditions are also recommended for inclusion in Part C of the permit:

#### 1. Chemical Additives

Chemical additives to control corrosion, scaling, algae, slime, fouling, oxygen, etc., shall be managed by the permittee to ensure that toxic effects in the receiving stream are prevented. Usage rates shall be limited to the minimum amount necessary to accomplish the intended purposes of the chemical addition and approval is limited to the chemicals and usage rates contained in the application.

Whenever a change in chemical additive or increase in usage rates is desired by the permittee, a written notification in the format specified by the Department, shall be submitted at least sixty (60) days prior to the proposed use of the chemical. For each proposed chemical or usage rate, the written notification, as a minimum, shall include the following:

- a. Trade names of additive;
- b. Name and address of additive manufacturer;
- c. Material Safety Data Sheet (MSDS) or other available information on mammalian or aquatic toxicological effects;
- d. Bioassay data including the 96-hour LC50 on the whole product;
- e. Proposed average and maximum additive usage rates in pounds per day;
- f. A flow diagram showing the point of chemical addition and the affected outfalls;
- g. The expected concentration of the product at the final outfall;
- h. The product density for liquids (pounds per gallon) used to convert the usage rate (gallons per day) to in-system concentrations (milligrams per liter);

detection level in milligrams per liter;

- j. The conditioned discharge rate or blowdown rate and duration in hours;
- k. Available data on the degradation of or decomposition of the additive in the aquatic environment; and
- l. Any other data or information the permittee believes would be helpful to the Department in completing its review.

Use of products or chemicals that contain one or more ingredients that are carcinogens is generally prohibited. Before proposing limited use of such products or chemicals, the permittee must thoroughly investigate use of alternative products or chemicals to avoid the use of the carcinogens. If no suitable alternatives are available, the permittee must submit written documentation that demonstrates to the satisfaction of the Department that no suitable alternatives are available and any carcinogen in the proposed chemical or product will not be detectable in the final effluent using the most sensitive analytical method available.

Based on the information presented, the Department will determine within sixty (60) days whether the existing NPDES permit must be amended to include specific effluent limitations for active ingredients or other control measures. When so required, the permittee will be advised within sixty (60) days that a formal request for a permit amendment is required including a filing fee and Act 14 notices.

If a permit amendment application is not requested within sixty (60) days, the permittee may proceed with the use of the proposed chemical additive or usage rate.

Accurate records of usage (name of additive, quantity added, and date added) of any approved chemical additive must be maintained on a Chemical Additive Reporting Form and kept on-site by the permittee. All correspondence and notifications related to the additives and usage rates must also be kept on-site with the required daily chemical usage records. If the notification is incomplete or the Department notifies the permittee that the proposed usage rate will cause violations of water quality standards, then use of the requested chemical additive or requested change in its usage rate will be denied.

## 2. Solids Disposal

Collected screenings, slurries, sludges, and other solids shall be handled and disposed of in a manner "equivalent" to the requirements indicated in 25 PA Code; Chapters 287, 288, 289, 291, 293, 295, 297, and 299, Federal Regulation 40 CFR 257, the Pennsylvania Clean Streams Law, the Pennsylvania Solid Waste Management Act of 1980, and the Federal Clean Water Act and its amendments.

Furthermore, the permittee is responsible to obtain or assure that contracted agents have all necessary permits and approvals for the handling, storage, transport and disposal of solid waste generated as a result of wastewater treatment.

prior to discharge. However, this stormwater can be directly discharged without treatment if the permittee obtains a discrete composite sample of the stormwater and can prove through analysis that all maximum daily and instantaneous maximum NPDES limits for all NPDES parameters can be met. A composite sample in this case consists of 4 grab samples of at least 100 millileters, taken 15 minutes apart that are combined prior to analysis. In the event the permittee discharges stormwater without treatment, this analytical data indicating compliance with all NPDES parameters must be submitted with the next monthly DMR.

#### 4. Receipt of Residual Waste

- A. The permittee shall document each load of residual waste received for processing at the treatment facility. Upon receipt, the permittee shall record the information required for the Residual Waste Supplemental DMR (Form No. 3800-FM-WSFR0450) and the residual waste transporter operational record pursuant to 25 Pa. Code § 299.219 as follows:
1. The types or classifications of residual waste received and well permit # if applicable.
  2. The weight or volume of the types of wastes received.
  3. The name, mailing address, telephone number, county and state of each generator of residual waste received.
  4. The name and location of any transfer facility that received and transferred the waste.
  5. The name and address of the person or municipality collecting or transporting the waste.
  6. The license plate number of the vehicle/trailer transporting the waste.
- B. This information at a minimum can be found on the required daily operational record of the transporter. If the transporter is unable to provide this information, the load shall not be accepted by the permittee until such time as the transporter is able to provide the required information.
- C. In addition, the permittee shall summarize the information on a monthly basis and submit the enclosed Residual Waste DMR Supplemental Form (Form No. 3800-FM-WSFR0450) to the Department as an attachment to the DMR.

# Wasteload Allocations

RMI	Name	Permit Number						
188.60	Outfall 001	PA0102784						
Radioactivity (Total Alpha and Beta)			0	0	0	0	65	65

		CRL						
Qh:	CCT (min)	720	PMF	0.328				
	Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
	ANTIMONY	0	0	0	0	NA	NA	NA
	ARSENIC	0	0	0	0	NA	NA	NA
	CADMIUM	0	0	0	0	NA	NA	NA
	COPPER	0	0	0	0	NA	NA	NA
	LEAD	0	0	0	0	NA	NA	NA
	MERCURY	0	0	0	0	NA	NA	NA
	NICKEL	0	0	0	0	NA	NA	NA
	SELENIUM	0	0	0	0	NA	NA	NA
	SILVER	0	0	0	0	NA	NA	NA
	ZINC	0	0	0	0	NA	NA	NA
	PHENOL	0	0	0	0	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	0	0	0	0	2.1	2.1	5871.488
	BENZENE	0	0	0	0	1.2	1.2	3355.136
	TOLUENE	0	0	0	0	NA	NA	NA
	ALUMINUM	0	0	0	0	NA	NA	NA
	TOTAL IRON	643	0	0	0	NA	NA	NA
	MANGANESE	148.9	0	0	0	NA	NA	NA

Wasteload Allocations

RMI	Name	Permit Number						
188.60	Outfall 001	PA0102784						
	BARIUM	0	0	0	0	NA	NA	NA
	BORON	0	0	0	0	NA	NA	NA
	COBALT	0	0	0	0	NA	NA	NA
	VANADIUM	0	0	0	0	NA	NA	NA
	ACETONE	0	0	0	0	NA	NA	NA
	P-CRESOL	0	0	0	0	NA	NA	NA
	ACRYLAMIDE	0	0	0	0	0.008	0.008	22.368
	Combined Radium 226/228 (pCi/l)	0	0	0	0	NA	NA	NA
	SD-AG29	0	0	0	0	NA	NA	NA
	SEP-C8040X	0	0	0	0	NA	NA	NA
	Radioactivity (Total Alpha and Beta)	0	0	0	0	NA	NA	NA



# Recommended Effluent Limitations

SWP Basin

Stream Code:

Stream Name:

18A

42122

ALLEGHENY RIVER

RMI	Name	Permit Number	Disc Flow (mgd)
188.60	Outfall 001	PA0102784	0.2130

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent	
				WQBEL (µg/L)	WQBEL Criterion
2,4,6-TRICHLOROPHENOL	106	INPUT	165.377	5871.488	CRL
ACETONE	7970	INPUT	12434.48	2120000	THH
ACRYLAMIDE	22.368	CRL	34.897	22.368	CRL
ALUMINUM	8000	INPUT	12481.29	42509.46	AFC
ANTIMONY	100	INPUT	156.016	8494.143	THH
ARSENIC	605	INPUT	943.897	19270.96	AFC
BARIUM	10000	INPUT	15601.61	1190000	AFC
BENZENE	396	INPUT	617.824	3355.136	CRL
BORON	365	INPUT	569.459	459102.2	AFC
CADMIUM	49	INPUT	76.448	147.392	CFC
COBALT	115	INPUT	179.418	5384.532	AFC
Combined Radium 226/228 (pCi/l)	105.7	INPUT	164.909	2426.898	THH
COPPER	757	INPUT	1181.042	2520.901	AFC
LEAD	200	INPUT	312.032	1603.553	CFC
MANGANESE	2000	INPUT	3120.322	516532.1	THH
MERCURY	0.4	INPUT	0.624	30.336	THH
NICKEL	690	INPUT	1076.511	27978.29	CFC
P-CRESOL	205	INPUT	319.833	45343.43	AFC
PHENOL	1080	INPUT	1684.974	1.274E+07	THH
Radioactivity (Total Alpha and Beta)	70.1	INPUT	109.367	39437.09	THH
SD-AG29	7000	INPUT	10921.13	600800.4	AFC
SELENIUM	1600	INPUT	2496.257	3027.042	CFC
SEP-C8040X	4000	INPUT	6240.643	34007.57	AFC
SILVER	880	INPUT	1372.941	1897.978	AFC
TOLUENE	140	INPUT	218.423	96354.79	AFC
TOTAL IRON	3000	INPUT	4680.482	2310000	CFC
VANADIUM	570	INPUT	889.292	28906.43	AFC
ZINC	420	INPUT	655.268	19204.68	AFC

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42122	ALLEGHENY RIVER	188.600	1184.00	3130.00	0.00000	0.00	<input checked="" type="checkbox"/>

### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.284	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	25.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

### Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 001	PA0102784	0.0000	0.2130	0.0000	0.000	20.00	9.00

### Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	53.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	28.80	0.00	0.00	0.70

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42122	ALLEGHENY RIVER	142.650	1013.13	4288.80	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
Q7-10	0.284	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	0.00	25.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

#### Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
<del>MOD WWTP</del>	PA	0.0000	0.0000	0.0000	0.000	20.00	6.60

Downstream  
Reach

#### Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

SWP Basin

Stream Code

Stream Name

18A

42122

ALLEGHENY RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
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**Q7-10 Flow**

188.600	888.92	0.00	888.92	.3295	0.00070	1.094	562.85	514.31	1.44	1.945	25.00	7.00
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**Q1-10 Flow**

188.600	568.91	0.00	568.91	.3295	0.00070	NA	NA	NA	1.12	2.497	25.00	7.00
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**Q30-10 Flow**

188.600	1208.93	0.00	1208.93	.3295	0.00070	NA	NA	NA	1.71	1.638	25.00	7.00
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Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

**NH3-N Acute Allocations**

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
188.600	Outfall 001	6.76	57.6	6.76	57.6	0	0

**NH3-N Chronic Allocations**

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
188.600	Outfall 001	1.34	28.8	1.34	28.8	0	0

**Dissolved Oxygen Allocations**

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
188.60	Outfall 001	53	53	28.8	28.8	3	3	0	0

SWP BasinStream CodeStream Name

18A

42122

ALLEGHENY RIVER

<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
188.600	0.213	24.998	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
562.854	1.094	514.310	1.444	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
2.02	0.004	0.01	1.028	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.241	5.339	Tsivoglou	5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
1.945	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.195	2.02	0.01	7.54
	0.389	2.02	0.01	7.54
	0.584	2.01	0.01	7.54
	0.778	2.01	0.00	7.54
	0.973	2.01	0.00	7.54
	1.167	2.01	0.00	7.54
	1.362	2.01	0.00	7.54
	1.556	2.00	0.00	7.54
	1.751	2.00	0.00	7.54
	1.945	2.00	0.00	7.54

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42122

ALLEGHENY RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
188.600	Outfall 001	PA0102784	0.213	CBOD5	53		
				NH3-N	28.8	57.6	
				Dissolved Oxygen			3



of the wastewater as required in 25 Pa. Code § 287.54 from the generator of the wastewater.

- E. For oil and gas wastewaters, within 30 days of delivering fracturing (frac) water to the treatment facility, the operator of the well generating the frac water will submit a Form 26R characterizing the frac wastewater. For the first 30 days of wastewater generation after fracturing, the operator of the well site will provide and the receiving facilities will rely upon an oil and gas industry generic characterization of the wastewater. A Form 26R will need to be submitted for all other types of wastewater generated prior to acceptance at the treatment facility.
- F. The information required by this condition shall be retained by the permittee for 5 years from the date of receipt. This information must be made available for inspection by and a copy made available to the Department, upon request.

#### OTHER CONSIDERATIONS

##### ENDANGERED SPECIES (Northern Riffleshell and Clubshell Mussels):

While the US Fish and Wildlife Service has expressed concerns regarding the potential impact of the discharge on endangered mussels, the report they provided for the Hickory Street Bridge Replacement Project survey indicated that mussels were rarely found along the left defending bank. The subject discharge from Waste Treatment Corporation's facility is along the left descending bank approximately  $\frac{3}{4}$  of a mile downstream of the area surveyed. Furthermore, this report also indicated that mussels were rarely found outside the mixing zone for Conewango Creek, and suggested that the Allegheny River may be too cold or lack the nutritional components for mussels or host species due to the bottom discharge from the Kinzua Dam.

Therefore, since 1) there is no evidence that endangered mussels exist in the immediate vicinity of the discharge, 2) it is likely that the characteristics of the Allegheny River in the area of the subject discharge would not be conducive to mussels even if the discharge was not present, and 3) the necessary limits to insure that applicable water quality criteria will be protected are recommended; the permit should be renewed as proposed.

##### CHEMICAL ADDITIVE EVALUATION:

The application indicates that two polymers are used in the treatment process. Specifically, the application indicates that Sal Chemical's SD-AG29 and SEP-C8040X polymers are used.

To determine whether approval to use these polymers should be granted, the in-system concentrations identified in the application were compared to the limits calculated by PENTOXSD. Since the calculated water quality based limits are significantly larger than the expected in-system concentrations (see Attachment VII), approval to use the additives should be granted.

As shown in Attachments II, II-A, and II-B, the applicant exceeded the effluent limits in their existing permit periodically during the last permit cycle. These permit violations are expected to be addressed by Water Quality's Monitoring and Compliance Section through an appropriate enforcement action.

#### COMPARISON TO EXISTING PERMIT:

The effluent limits and monitoring requirements recommended for the new permit are significantly different than those in the existing permit. Most of the differences are due to the indication by WTC that they plan to only accept oil and gas wastewater and the determinations by the Department and EPA that additional technology based limits are applicable for oil and gas wastewater treatment facilities (see Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Formation in Attachment VIII)

As for special conditions, only three of the sixteen contained in the existing permit are recommended for the new permit since only wastewater from the oil and gas industry is proposed to be accepted and treated at the subject facility. Specifically, the special conditions titled Chemical Additives and Solids Disposal from the existing permit are recommended for the new permit along with the first part of the special condition titled Stormwater Treatment Waiver and Sampling Required. Only the first part of this condition is recommended for the new permit since the sampling requirements referenced in the second part of this condition were included because the facility was previously considered as a Subcategory A Metals waste treatment facility. Finally, a new special condition outlining the required record keeping for accepting oil and gas wastewaters is recommended in accordance with the Final Permitting Strategy for High-TDS Wastewater from Natural Gas Drilling in the Marcellus Formation (see Attachment VIII). The Analytical Methods and Sample Collection, Preservation and Handling Techniques special condition is not recommended for the new permit since the Department now has a laboratory certification process that should help insure that sample collection, preservation, and handling is done appropriately.

# Discharge & Background Concentrations

Parameter	Discharge Concentration	**	
		Background Concentration	Units
Arsenic	605		ug/l
Cadmium	49		ug/l
Copper	757 *T*		ug/l
Lead	200		ug/l
Silver	880		ug/l
Zinc	420 *T*		ug/l
Phenolics	259		ug/l
Benzene	396		ug/l
Toluene	140		ug/l
Aluminum	8000		ug/l
Barium	10000 *T*		ug/l
Iron (Total)	3000 *T*	643	ug/l
Iron (Dissolved)	3000 *T*		ug/l
Manganese	2000 *T*	148.9	ug/l
Chloride	102230	18263	ug/l
Sulfate	646000	16000	ug/l
Ammonia-N	28800 *T*		ug/l
T.D.S.	107272000	111000 & 159000	ug/l
Nickel	690		ug/l
Cobalt	115		ug/l
Boron	365		ug/l
Mercury	0.4		ug/l
Selenium	1600		ug/l
Antimony	100		ug/l
Vanadium	570		ug/l
Acrylamide	54		ug/l
Hardness	26400000	43000	ug/l
pH	9 *T*	7	s.u.
BOD5	53 *T*		mg/l
Acetone	7970 *T*		ug/l
p-Cresol	205 *T*		ug/l
Phenol	1080 *T*		ug/l
2,4,6-Trichlorophenol	106 *T*		ug/l
Radioactivity (Total Alpha & Beta)	70.1		pCi/l
Radium (Total)	105.7		pCi/l

\*\* Assumed zero unless otherwise noted. For pH, manganese, iron, and hardness used average from WQN 866 (see Attachment VI). For sulfate used Logarithmic Regression data from WQN 867 provided by Central Office - Water Quality (see Attachment V). For chlorides used average from WQN 804 (see Attachment VI-A). For TDS used Logarithmic Regression data from WQN 805 and WQN 867 provided by Central Office - Water Quality (see Attachment V) for the local and far field analysis respectively.

Waste Treatment Corporation  
**2009 WQPR**  
**Evaluation Summary**

PARAMETER	DISC. CONC.	* CALC. WQ BASED EFFL. LIMIT	*** CRITERIA	NEEDS WQ BASED LIMIT?
Arsenic	605	19270.96	AFC - 340	NO
Cadmium	49	147.392	CFC - 0.222	?
Copper	757	2520.901	AFC - 42.698	?
Lead	200	1603.553	CFC - 2.147	?
Silver	880	1897.978	AFC - 28.463	?
Zinc	420	19204.68	AFC - 331.376	NO
Benzene	396	3355.136	CRL - 1.2	?
Toluene	140	96354.79	AFC - 1700	NO
Aluminum	8000	42509.46	AFC - 750	?
Barium	10000	1190000	AFC - 21000	NO
Iron (Total)	3000	407233.3	CFC - 1500	NO
Iron (Dissolved)	3000	182017.3	THH - 300	NO
Manganese	2000	516532.1	THH - 1000	NO
Ammonia-N	28800	**	**	NO
Nickel	690	27978.29	CFC - 45.975	NO
Cobalt	115	5384.532	AFC - 95	NO
Boron	365	459102.2	AFC - 8100	NO
Mercury	0.4	30.336	THH - 0.05	NO
Selenium	1600	3027.042	CFC - 4.6	?
Antimony	100	8494.143	THH - 14	NO
Vanadium	570	28906.43	AFC - 510	NO
Acrylamide	54	22.368	CRL - 0.008	?
Radioactivity (Total Alpha & Beta)	70.1	39437.09	THH - 65	NO
BOD5	53000	**	**	NO
Acetone	7970	2120000	THH - 3500	NO
p-Cresol	205	45343.43	AFC - 800	NO
Phenol	1080	12740000	THH - 21000	NO
2,4,6-Trichlorophenol	106	5871.488	CRL - 2.1	NO
Radium (Total)	105.7	2426.898	THH - 4	NO

\* From PENTOXSD results in Attachment III

\*\* See Attachment IV (WQM 7.0 results)

Note: All units in ug/l except osmotic pressure (mOs/kg), radioactivity (pCi/l), and radium (pCi/l)

**Waste Treatment Corporation  
2009 WQPR  
PWS Criteria Evaluation**

		*	**	***	
	Criteria	Background	Maximum	Total	****
Parameter	(mg/l)	Concentration	Allowable	Discharge	Limit
		(mg/l)	Load	Load	Needed?
			(lbs/day)	(lbs/day)	
Chloride	250	18.263	2,250,980	632,427	?
Phenolics	0.005	0	48.57	1.485	no
Sulfate	250	16	2,272,962	4,575	no

$Q_{(7-10)} = 1801$  cfs \*\*\*\*\*

- \* Sulfate from WQN 867, chloride from WQN 804, and phenolics assumed
- \*\* Equal to  $Q_{(7-10)} * (\text{Criteria} - \text{Background})$
- \*\*\* See Attachment X
- \*\*\*\* If Total Discharge Load < 10% of Maximum Allowable Load assumed  
no limits needed
- \*\*\*\*\* From Northwest Regional Office Assimilative Capacity Analysis  
provided by Central Office-Water Quality (see Attachment V)

Parameter	Appl. Infl.	8/26/2008 Appl. Effl.	8/28/2008 Appl. Effl.	8/20/2008 Appl. Effl.	DEP Sample 3/27/2008	DEP Sample 1/8/2008	DEP Sample 1/25/2006	DEP Sample 8/2/2005	** DMR's	*** Used	Units
Flow	0.084	0.101	0.05	0.01					0.237	0.213	mgd
TSS	124	< 2	< 2	< 2	294	368	< 2	2320	36.5	30	mg/l
TDS	102598	98400	107272	92236						107272	mg/l
Ammonia-N	13.3	20.1	20.2	28.8						28.8	mg/l
Oil & Grease	98	< 5	< 5	< 5	< 5			8.6	40.8	15	mg/l
Bromide	614	499	512	548						614	mg/l
pH	6.85	7.36	7.84	7.77					11	9	S. U.
Sulfate	646	539	623	632						646	mg/l
MBAS	9.55	20.8	13.9	15.8						20.8	mg/l
Arsenic	0.126	0.052	0.054	0.055	0.101	0.13	< 0.2	0.605	0.48	0.605	mg/l
Beryllium	< 0.001	< 0.001	< 0.001	< 0.001						0	mg/l
Cadmium	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	< 0.1	< 0.01	0.493	0.05	0.049	mg/l
Copper	0.641	0.0921	0.116	0.132	< 0.1				0.7	0.757	mg/l
Chromium	0.0086	0.0106	0.0148	0.0114	< 0.05	< 0.1			0.12	0.12	mg/l
Lead	0.0064	< 0.005	< 0.005	< 0.005	< 0.025	< 0.025	< 0.05		0.2	0.2	mg/l
Nickel	0.219	0.025	0.023	0.025	< 0.05	< 0.5			0.69	0.69	mg/l
Silver	< 0.001	< 0.001	< 0.001	< 0.001	< 0.01	< 0.1	< 0.01		0.88	0.88	mg/l
Zinc	0.0405	0.013	< 0.01	0.017	< 0.01	< 0.1	0.012	0.02	0.1	0.42	mg/l
Phenolics	< 0.005	< 0.005	0.242	0.259						0.259	mg/l
Aluminum	0.683	0.013	0.022	0.02	< 2	< 2	< 0.2	0.342	8	8	mg/l
Barium	1.04	0.407	0.285	0.389						10	mg/l
Total Iron	26.6	0.92	0.58	0.24	0.404	2.18	0.533	2.22	3.96	3	mg/l
Dissolved Iron	20.3	0.23	0.23	0.24						3	mg/l
Magnesium	1570	389	517	413						1570	mg/l
Manganese	7.12	0.0688	0.095	0.053						2	mg/l
Benzene	0.396	0.075	0.094	0.267						0.396	mg/l
Toluene	0.114	0.093	0.089	0.14						0.14	mg/l
Sodium	22500	16600	18600	18600						22500	mg/l
Calcium	10900	9940	8610	11000						11000	mg/l
Lithium	11	12	11	18						18	mg/l
Chloride	56190	51330	48970	48350	76980.7				102230	102230	mg/l
Osmotic Pressure	2001	1654	1879	1807	4120				7250	7250	mg/l
Acidity	92	20	13	23					52	92	mg/l
Alkalinity	56	49	64	56					1	1	mg/l
Specific Conductance	164400	153650	143600	147000						164400	umhos/cm
Hardness	33700	26400	223400	29200						26400	mg/l
BOD	387				31					53	mg/l
COD	641				3644.8		531			3644.8	mg/l
Nitrate-Nitrite	< 25									0	mg/l
Phosphorus	5.52									5.52	mg/l
Color	36									36	pt-co units
Fecal Coliform	10	< 2	< 2	< 2					1127	1127	per 100 ml
Fluoride	< 0.5									0	mg/l
Chlorine, Total Residual	< 0.03	< 0.03	< 0.03	< 0.03						0	mg/l
Sulfide	< 0.05	< 0.05	< 0.05	< 0.05						0	mg/l
Sulfite	< 2	< 2	< 2	< 2						0	mg/l
Boron	0.365									0.365	mg/l
Cobalt	0.015				< 0.05	< 0.5			0.1	0.115	mg/l
Radioactivity (Total Alpha & Beta)	70.1									70.1	pCi/l
TOC	74.4									74.4	mg/l
Radium, Total	105.7									105.7	pCi/l
Molybdenum	0.016									0.016	mg/l
Tin	0.037				0.861	< 2	1.52		2.32	2.32	mg/l
Titanium	0.02				< 0.02	< 0.1	0.2		0.778	0.778	mg/l
Antimony	< 0.006	< 0.006	< 0.006	< 0.006	< 0.001	< 0.05	< 0.1	< 0.05	0.1	0.1	mg/l
Mercury	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.175	< 0.35	1.6	0.0004	0.0004	mg/l
Selenium	< 0.005				< 0.175	< 0.175	< 0.35	1.6	0.879	1.6	mg/l
Cyanide, Total	< 0.02	< 0.02	< 0.02	< 0.02						0	mg/l
Vanadium					< 0.2	< 0.2	0.02		0.57	0.57	mg/l
Acrylamide									0.04	0.054	mg/l

\*\* Equal to maximums from DMR data (see Attachment's II, II-A, and II-B) for all parameters except alkalinity (used minimum).

\*\*\* Equal to maximum from available data for all parameters except alkalinity (used minimum), dissolved iron (used tech. limit for total iron), hardness (used minimum), cadmium (used existing WQ limit), acrylamide (used existing WQ limit), flow (used maximum from application), and parameters (total iron, barium, pH, copper, zinc, ammonia, TSS, Oil and Grease, BOD, and manganese) with applicable technology based limits (used tech. limits).

mos/kg  
Revised  
12/23/08  
KLS

005	JAN	0.17	7	36.5	V	1.7	0.053	0.1	0.1	0.17	0.1	0.0004	0.1	0.01	0.02	0.1	0.1	0.05	6.2	8.9				
	FEB	0.137	19	V	1.6	0.11	0.086	0.02	0.05	0.02	0.1	0.0002	0.05	0.005	0.02	0	0.06	0.06	6.2	8.9				
	MAR	0.154	5		6.4	3.3	0.08	0.03	0.05	0.05	0.1	0.0002	0.05	0.005	0.02	0.395	0.06	0.05	6	8.9				
	APR	0.237	3.8		3.3	0.12	0.1	0.05	0.05	0.26	0.1	0.0002	0.05	0.005	0.02	0.393	0.06	0.05	6	8.9				
	MAY	0.219	3		7	1.03	0.15	0.02	0.05	0.06	<0.1	<0.0002	<0.05	<0.05	<0.02	0.288	<0.06	<0.05	6.6	8.9				
	JUN	0.22	2.8		10.4	1.28	0.48	V	0.02	0.05	0.11	0.2	0.0002	0.05	0.05	0.02	1.87	V	0.06	6	8.9			
	JUL	0.199	3.5		19.5	3.96	V	0.05	0.02	0.05	0.14	0.1	0.0002	0.05	0.05	0.02	1.22	V	0.06	6	8.9			
	AUG	0.188	4		8.4	2.2	0	0	0	0.09	0	0	0	0	0	0.564	V	0	6	8.9				
	SEP	0.173	<3.5		11.8	0.08	<0.05	<0.08	<0.05	0.08	<0.1	<0.0002	<0.05	<0.05	<0.02	1.09	V	0.2	0.22	V	6	11	V	
	OCT	0.111	6.3		6	1	<0.05	<0.02	<0.05	0.09	0.1	<0.0002	0.08	<0.05	<0.02	0.814	V	0.2	0.36	V	5.6	V	9	V
	NOV	0.141	3		7.6	1.36	0.05	0.06	0.05	0.09	0.1	0.0002	0.06	0.05	0.02	0.806	V	0.16	0.36	V	6	9.7	V	
	DEC	0.14	40.8	V	7.3	0.25	<0.07	<0.02	<0.05	0.18	0.1	<0.0002	0.09	0.05	<0.02	1.69	V	0.23	V	0.34	V	6	8.9	
006	JAN	0.127	3.3		4.8	0.38	0	<0.02	<0.05	0.09	<0.1	<0.0002	0.08	<0.05	<0.02	1.35	V	0.53	V	0.28	V	6	8.9	
	FEB	0.105	7.5		9.3	0.75	<0.05	<0.02	<0.05	0.1	<0.1	<0.0002	0.05	<0.05	<0.02	1.51	V	0.12	0.2	V	6	8.9		
	MAR	0.21	5.8		<1	0.86	<0.05	<0.02	<0.05	0.13	<0.1	<0.0002	<0.05	<0.05	<0.02	1.53	V	0.33	V	0.36	V	6	8.9	
	APR	0.155	8		1.8	1.01	0.092	0.02	0.05	0.1	0.1	0.0002	0.05	0.05	0.02	1.22	V	0.24	V	0.31	V	6	8.9	
	MAY	0.165	6.5		2.8	2.5	0.02	0.02	0.05	0.07	0.1	0.0002	0.09	0.05	0.02	1.02	V	0.519	V	0.778	V	6	8.7	
	JUN	0.18	2.8		8.2	0.83	0.05	0.02	0.05	0.12	0.1	0.0002	0.27	0.05	0.02	2.32	V	<0	<0	6	9			
	JUL	0.161	3		7	0.175	<0.05	<0.2	<0.05	0.32	<0.1	<0.0002	<0.12	<0.05	<0.02	0.492	V	0.346	V	<0.05	6	9.6	V	
	AUG	0.148	7.4		6	0.19	0.08	0.04	0.05	0.03	0.1	0.0002	0.69	0.07	0.02	0.85	V	0.06	0.34	V	6	9.7	V	
	SEP	0.18	3.5		6.3	0.9	<0.05	<0.09	<0.05	0.1	<0.1	<0.0002	<0.23	<0.05	<0.02	0.403	0.57	V	<0.31	5.8	V	9		
	OCT	0.18	4		4.5	0.03	0.05	0.02	0.05	0.02	0.1	0.0002	0.05	0.05	0.02	0.1	0.05	0.06	6	8.9				
	NOV	0.172	5		5.6	1.1	<0.003	<0.02	<0.01	<0.01	<0.005	<0.0002	0.04	<0.005	<0.001	0.142	0.019	0.01	6	8.9				
	DEC	0.172	5.3		5	0.1	0.019	0.02	0.013	0.05	0.005	0.0002	0.04	0.005	0.005	0.01	0.01	0.03	6.1	8.9				
007	JAN	0.163	5		3	0.1	0.003	0.02	0.021	0.38	0.005	0.0002	0.24	0.005	0.002	0.01	0.01	0.0366	6.1	8.9				
	FEB	0.142	5		2	0.265	0.299	V	0.09	0.031	0.32	0.015	0.0002	0.15	0.327	0.004	0.01	0.019	0.0588	6.2	8.9			
	MAR	0.216	<5		<3	<0.1	0.44	V	0.04	0.023	0.22	<0.01	<0.0002	0.3	0.879	0.88	V	<0.01	<0.01	0.032	6.1	8.9		
	APR	0.186	<5		<3	0.97	0.399	V	0.04	0.027	0.63	<0.01	<0.0002	0.27	0.423	<0.42	<0.01	<0.011	0.0424	6.1	8.9			
	MAY	0.171	<5		<4.8	0.46	0.0687	0.01	0.022	0.39	<0.01	<0.0002	0.42	0.005	<0.01	<0.028	<0.01	0.0358	6.1	9				
	JUN	0.171	<5.8		<6	0.47	0.042	0.03	0.027	0.62	<0.01	<0.0002	0.45	0.005	<0.01	0.039	<0.06	<0.0384	6.1	8.9				
	JUL	0.167	<5		<2.5	0.35	0.037	0.02	<0.017	0.39	<0.01	<0.0002	0.29	0.236	<0.24	<0.039	<0.01	<0.0209	6.1	8.9				
	AUG	0.156	<5		<2.4	0.25	0.059	0.05	<0.018	0.09	<0.01	<0.0002	0.03	0.23	<0.23	<0.022	<0.01	0.0323	6.1	8.6				
	SEP	0.184	<5		<2.5	1.2	0.088	0.04	0.025	0.17	<0.01	<0.0002	0.3	0.335	<0.001	0.051	<0.01	0.0185	6.1	8.9				
	OCT	0.165	<5		<4.4	2.01	0.095	0.05	0.035	0.53	<0.01	<0.0002	0.63	0.403	<0.001	<0.01	<0.01	0.0304	6.1	8.9				
	NOV	0.214	<28.5		<5.5	<0.1	0.071	0.03	0.021	0.45	<0.01	<0.0002	0.49	0.377	<0.001	<0.035	<0.01	<0.0223	6.1	8.9				
	DEC	0.18	5		2.5	0.11	0.077	0.05	0.022	0.3	0.05	0.0002	0.05	0.284	0.001	0.01	0.01	0.0224	6.1	8.9				
008	JAN	0.196	<5.6		<5.6	<0.1	0.069	0.03	0.016	0.34	0.005	0.0002	0.25	0.212	0.001	0.024	0.01	0.0121	6.1	8.8				
	FEB	0.186	5		2	0.37	0.06	0.09	0.033	0.2	0.005	0.0002	0.39	0.338	0.001	0.033	0.01	0.0438	6.1	8.8				
	MAR	0.187	5		3	0.62	0.105	0.04	0.031	0.27	0.005	0.0002	0.35	0.396	0.001	0.02	0.01	0.022	6.1	8.9				
	APR	0.198	5		2.4	0.37	0.084	0.06	0.015	0.47	0.005	0.0002	0.38	0.292	0.001	0.01	0.01	0.0235	6	8.9				
	MAY	0.196	6		2.5	0.49	0.047	0.03	0.015	0.06	0.005	0.0002	0.24	0.128	0.001	0.024	0.01	0.0362	6.1	8.8				
	JUN	0.196	5		9.5	0.68	0.051	0.03	0.016	0.34	0.005	0.0002	0.25	0.212	0.001	0.024	0.01	0.0121	6.1	8.9				
	JUL	0.18	6.4		3.2	1.92	0.145	0.12	0.017	0.07	0.005	0.0002	0.07	0.674	0.001	0.065	0.01	0.0245	6.1	8.9				
	AUG	0.213	7		7	0.61	0.058	0.03	0.01	0.28	0.005	0.0002	0.28	0.239	0.001	0.016	0.01	0.0121	6.1	8.9				
	SEP	0.213	5		2	0.46	0.177	V	0.02	0.011	0.18	0.005	0.0002	0.19	0.303	0.001	0.01	0.01	0.0206	6.1	8.8			
	OCT	0.214	<5		<5.2	0.59	0.17	V	0.03	0.02	0.14	<0.01	<0.0002	0.31	0.437	<0.001	<0.01	0.01	0.0216	6.3	8.6			
	NOV	0.214	5		5	1.69	0.106	0.08	0.03	0.34	0.01	0.0002	0.34	0.388	0.02	0.01	0.01	0.0274	6.2	8.9				
	DEC	0.214	5		2.4	2.03	0.097	0.02	0.017	0.11	0.005	0.0002	0.27	0.354	0.001	0.01	0.01	0.0169	6.1	8.8				
009	JAN	0.212	6		5.5	0.56	0.361	0.02	0.115	0.62	0.005	0.0002	0.19	0.359	0.001	0.017	0.01	0.064	6.1	8.9				
	FEB	0.139	13		4.5	1.51	0.034	0.02	0.03	0.27	0.005	0.0002	0.37	0.005	0.005	0.025	0.01	0.0298	6.1	8.9				
	MAR	0.156	5		2.5	1.82	0.058	0.02	0.023	0.53	0.005	0.0002	0.32	0.005	0.001	0.02	0.01	0.0401	6.1	8.9				
	APR	0.192	5		2	1.37	0.043	0.02	0.024	0.7	0.005	0.0002	0.32	0.01	0.001	0.016	0.01	0.0411	6	8.9				
	MAY	0.21	5		8.5	1.09	0.03	0.015	0.016	0.59	0.005	0.0002	0.32	0.005	0.001	0.021	0.01	0.0618	6	8.9				
	JUN	0.208	5		3.5	1.65	0.043	0.02	0.03	0.41	0.005	0.0002	0.39	0.005	0.001	0.031	0.01	0.0359	6	8.9				
Average		0.18	4.98		4.82	0.91	0.09	0.03	0.03	0.24	0.03	0.0001	0.20	0.16	0.022	0.383	0.08	0.089	6.1	9.0				
Minimum		0.105	2.8		1.6	0.03	0	0	0	0.02	0	0	0	0	0	0	0	0	5.6	8.6				
Maximum		0.237	40.8		36.5	3.96	0.48	0.12	0.115	0.7	0.2	0.0004	0.69	0.879	0.88	2.32	0.57	0.778	6.6	11				

otes: All units in mg/l except flow (mgd) and ph (standard units).  
V -- Indicates effluent limit exceeded.

Year	Quarter	Alkalinity	Acidity	Cadmium	Zinc	Antimony	Aluminum
2005	1st		V				
	2nd	1	46 V	0.02	0.01	0.1	0.1
	3rd	42	11	0.02	0.02	0.1	2.1
	4th	125	1	<0.005	0.03	<0.1	8 V
2006	1st	19	7	0.02	0.01	<0.1	0.6
	2nd	129	39	0.02	0.03	0.1	0.2
	3rd	120	18	<0.02	0.05	<0.1	0.3
	4th	45	21	0.02	0.01	0.1	0.1
2007	1st	60	16	0.001	0.03	0.008	0.01
	2nd	87	12	<0.001	0.07	<0.006	0
	3rd	33	24	<0.001	0.05	<0.006	<0
	4th	69	9	<0.001	<0.01	<0.006	0
2008	1st	45	34	<0.001	0.1	0.006	0
	2nd	68	52	0.001	0.01	0.006	0.101
	3rd	48	37	0.001	0.01	0.006	0.028
	4th	15	16 V	0.001	0.01	0.006	0.039
2009	1st	52	26	0.001	0.02	0.043	0.031
	2nd	66	26	0.001	0.01	0.006	0.094
	Average	60	23	0.006	0.03	0.028	0.69
	Minimum	1	1	0.000	0	0	0
	Maximum	129	52	0.020	0.10	0.10	8.00

Notes: All units in mg/l.

All values are daily maximums except alkalinity which is a monthly average.

V -- Indicates effluent limit exceeded.



Year	Month	(mgd)	(mg/l)	(/100 ml)	(mg/l)	(mOs/kg)	(mg/l)
2005	JAN	0.174	0.01	530	V 48100	2445	0.008
	FEB	0.139	0	1	75000	3605	0.00004
	MAR	0.182	0.02	1	37000	1910	0.00004
	APR	0.238	V < 0	109	40500	1990	< 0.00004
	MAY	0.219	V < 0	786	V 26000	967	< 0.00004
	JUN	0.226	V < 0	1	76000	3380	< 0.00004
	JUL	0.204	< 0	22	22000	4859	< 0.00004
	AUG	0.194	0	32	66500	3600	0
	SEP	0.179	0.02	1	39000	1900	< 0.00004
	OCT	0.113	0.005	170	33100	1346	< 0.00004
	NOV	0.141	0.005	59	6350	2906	0.00004
	DEC	0.145	0.005	1127	V 39200	1799	0.00004
2006	JAN	0.127	0.005	817	V 21000	1118	0.00004
	FEB	0.105	< 0.005	213	V 20900	936	0.00004
	MAR	0.215	V < 0.005	205	V 24000	1081	< 0.00004
	APR	0.158	0.005	105	29000	1292	0.00004
	MAY	0.165	0.005	26	10700	532	0.00004
	JUN	0.184	0.005	9	25250	1359	< 0.00004
	JUL	0.163	0.05	1101	V 5500	134	< 0.00004
	AUG	0.153	0.005	1103	V 60500	150	0.00004
	SEP	0.183	< 0.008	55	46000	524	< 0.00004
	OCT	0.182	< 0.05	28	57900	2025	< 0.00004
	NOV	0.176	0.001	2	59500	2635	< 0.00004
	DEC	0.176	0.001	94	52000	2650	0.00004
2007	JAN	0.167	0.001	107	49215	2310	0.00004
	FEB	0.142	0.001	2	44000	2550	< 0.00004
	MAR	0.216	V < 0.001	2	84420	7250	< 0.04
	APR	0.186	< 0.005	2	78476	5800	< 0.04
	MAY	0.181	< 0.001	< 2	59380	5900	< 0.04
	JUN	0.187	< 0.001	< 11	24335	1147	< 0.04
	JUL	0.181	< 0.001	< 4	42370	1966	< 0.04
	AUG	0.162	< 0.001	< 94	33625	1677	< 0.04
	SEP	0.186	< 0.001	< 6	34395	1542	< 0.04
	OCT	0.169	< 0.001	< 26	36410	1821	< 0.04
	NOV	0.22	V < 0.002	< 3	32070	1559	< 0.04
	DEC	0.184	0.001	2	27905	1319	0.04
2008	JAN	0.189	< 0.001	< 2	29490	1550	< 0.04
	FEB	0.186	0.001	2	53405	1903	0.04
	MAR	0.187	0.001	2	79685	1820	0.04
	APR	0.198	0.001	2	89300	1773	0.04
	MAY	0.196	0.001	2	60715	1788	0.04
	JUN	0.196	0.001	2	64185	1827	0.04
	JUL	0.2	0.001	2	61805	1684	0.04
	AUG	0.213	0.001	2	61010	1820	0.04
	SEP	0.213	0.001	2	49650	996	0.04
	OCT	0.214	V < 0.001	< 2	62640	1698	< 0.04
	NOV	0.214	V 0.001	3	93010	1691	0.04
	DEC	0.214	V 0.001	2	51915	1725	0.04
2009	JAN	0.212	0.002	2	67000	1595	0.04
	FEB	0.139	0.001	2	75550		0.04
	MAR	0.156	0.001	2	73320		0.04
	APR	0.192	0.001	2	102230		0.04
	MAY	0.21	0.005	4	68450		0.04
	JUN	0.208	0.001	8	61120		0.04
Average		0.183	0.003	125	49483	2079	0.0127

# Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)				Apply FC					
42122	188.60	1184.00	3130.00	0.00000	0.00				<input checked="" type="checkbox"/>					
Stream Data														
LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary		Stream		Analysis		
(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	Hard	pH	Hard	pH	Hard	pH	
								(mg/L)		(mg/L)		(mg/L)		
Q7-10	0.284	0	0	0	0	0	0	100	7	43	7	0	0	
Qh		0	0	0	0	0	0	100	7	43	7	0	0	
Discharge Data														
Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserye Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH			
		(mgd)	(mgd)	(mgd)						(mg/L)				
Outfall 001	PA0102784	0	0.213	0	0	0	0	0	0	26400	9			
Parameter Data														
Parameter Name	Disc Conc	Trib Conc	Disc Daily CV	Disc Hourly CV	Steam Conc	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc				
	(µg/L)	(µg/L)			(µg/L)					(µg/L)				
2,4,6-TRICHLOROPHENOL	106	0	0.5	0.5	0	0	0	0	1	0				
ACETONE	7970	0	0.5	0.5	0	0	0	0	1	0				
ACRYLAMIDE	54	0	0.5	0.5	0	0	0	0	1	0				
ALUMINUM	8000	0	0.5	0.5	0	0	0	0	1	0				
ANTIMONY	100	0	0.5	0.5	0	0	0	0	1	0				
ARSENIC	605	0	0.5	0.5	0	0	0	0	1	0				
BARIUM	10000	0	0.5	0.5	0	0	0	0	1	0				
BENZENE	396	0	0.5	0.5	0	0	0	0	1	0				
BORON	365	0	0.5	0.5	0	0	0	0	1	0				
CADMIUM	49	0	0.5	0.5	0	0	0	0	1	0				
COBALT	115	0	0.5	0.5	0	0	0	0	1	0				
Combined Radium 226/228 (pCi/l)	105.7	0	0.5	0.5	0	0	0	0	1	0				
COPPER	757	0	0.5	0.5	0	0	0	0	1	0				
LEAD	200	0	0.5	0.5	0	0	0	0	1	0				
MANGANESE	2000	0	0.5	0.5	148.9	0	0	0	1	0				
MERCURY	0.4	0	0.5	0.5	0	0	0	0	1	0				
NICKEL	690	0	0.5	0.5	0	0	0	0	1	0				
P-CRESOL	205	0	0.5	0.5	0	0	0	0	1	0				
PHENOL	1080	0	0.5	0.5	0	0	0	0	1	0				
Radioactivity (Total Alpha and Beta)	70.1	0	0.5	0.5	0	0	0	0	1	0				
SD-AG29	7000	0	0.5	0.5	0	0	0	0	1	0				
SELENIUM	1600	0	0.5	0.5	0	0	0	0	1	0				
SEP-C8040X	4000	0	0.5	0.5	0	0	0	0	1	0				
SILVER	880	0	0.5	0.5	0	0	0	0	1	0				
TOLUENE	140	0	0.5	0.5	0	0	0	0	1	0				
TOTAL IRON	3000	0	0.5	0.5	643	0	0	0	1	0				
VANADIUM	570	0	0.5	0.5	0	0	0	0	1	0				

Stream Code	Rkm	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS Width (mgd)	Apply FC
42122	142.65	1013.13	4288.80	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data														
	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary		Stream		Analysis	
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	Hard	pH	Hard	pH	Hard	pH
									(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.284	0	0	0	0	0	0	0	0	0	0	7	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data													
Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH		
		(mgd)	(mgd)	(mgd)						(mg/L)			
IMOD WWTP	PA	0	0	0	0	0	0	0	0	17900	6.6		

Parameter Data												
Parameter Name	Disc Conc	Trib Conc	Disc Daily CV	Disc Hourly CV	Steam Conc	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc		
	(µg/L)	(µg/L)			(µg/L)					(µg/L)		
2,4,6-TRICHLOROPHENOL	0	0	0.5	0.5	0	0	0	0	1	0		
ACETONE	0	0	0.5	0.5	0	0	0	0	1	0		
ACRYLAMIDE	0	0	0.5	0.5	0	0	0	0	1	0		
ALUMINUM	0	0	0.5	0.5	0	0	0	0	1	0		
ANTIMONY	0	0	0.5	0.5	0	0	0	0	1	0		
ARSENIC	0	0	0.5	0.5	0	0	0	0	1	0		
BARIUM	0	0	0.5	0.5	0	0	0	0	1	0		
BENZENE	0	0	0.5	0.5	0	0	0	0	1	0		
BORON	0	0	0.5	0.5	0	0	0	0	1	0		
CADMIUM	0	0	0.5	0.5	0	0	0	0	1	0		
COBALT	0	0	0.5	0.5	0	0	0	0	1	0		
Combined Radium 226/228 (pCi/l)	0	0	0.5	0.5	0	0	0	0	1	0		
COPPER	0	0	0.5	0.5	0	0	0	0	1	0		
LEAD	0	0	0.5	0.5	0	0	0	0	1	0		
MANGANESE	0	0	0.5	0.5	0	0	0	0	1	0		
MERCURY	0	0	0.5	0.5	0	0	0	0	1	0		
NICKEL	0	0	0.5	0.5	0	0	0	0	1	0		
P-CRESOL	0	0	0.5	0.5	0	0	0	0	1	0		
PHENOL	0	0	0.5	0.5	0	0	0	0	1	0		
Radioactivity (Total Alpha and Beta)	0	0	0.5	0.5	0	0	0	0	1	0		
SD-AG29	0	0	0.5	0.5	0	0	0	0	1	0		
SELENIUM	0	0	0.5	0.5	0	0	0	0	1	0		
SEP-C8040X	0	0	0.5	0.5	0	0	0	0	1	0		
SILVER	0	0	0.5	0.5	0	0	0	0	1	0		
TOLUENE	0	0	0.5	0.5	0	0	0	0	1	0		
TOTAL IRON	0	0	0.5	0.5	0	0	0	0	1	0		
VANADIUM	0	0	0.5	0.5	0	0	0	0	1	0		
ZINC	0	0	0.5	0.5	0	0	0	0	1	0		

# Hydrodynamics

<u>SWP Basin</u>		<u>Stream Code:</u>		<u>Stream Name:</u>							
18A		42122		ALLEGHENY RIVER							
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)

## Q7-10 Hydrodynamics

188.600	888.92	0	888.92	0.32951	0.0007	1.0944	562.85	514.31	1.4436	1.9451	1000+
142.650	1218.0	0	1218.0	NA	0	0	0	0	0	0	NA

## Qh Hydrodynamics

188.600	2807.3	0	2807.3	0.32951	0.0007	1.815	562.85	310.12	2.7484	1.0217	1000+
142.650	3697.0	0	3697.0	NA	0	0	0	0	0	0	NA

# Wasteload Allocations

RMI	Name	Permit Number	AFC								
188.60	Outfall 001	PA0102784	Q7-10:	CCT (min)	15	PMF	0.032	Analysis pH	7.004	Analysis Hardness	341.059
			Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	
			ANTIMONY	0	0	0	0	1100	1100	97271.67	
			ARSENIC	0	0	0	0	340	340	30065.79	
			CADMIUM	Dissolved WQC. Chemical translator of 1 applied.							
				0	0	0	0	6.628	7.425	656.594	
			COPPER	Dissolved WQC. Chemical translator of 0.893 applied.							
				0	0	0	0	42.698	44.477	3933.01	
			LEAD	Dissolved WQC. Chemical translator of 0.96 applied.							
				0	0	0	0	238.307	389.244	34420.39	
			MERCURY	Dissolved WQC. Chemical translator of 0.612 applied.							
				0	0	0	0	1.4	1.647	145.647	
			NICKEL	Dissolved WQC. Chemical translator of 0.85 applied.							
				0	0	0	0	1322.021	1324.671	117139	
			SELENIUM	Dissolved WQC. Chemical translator of 0.998 applied.							
				0	0	0	0	NA	NA	NA	
			SILVER	0	0	0	0	28.463	33.486	2961.151	
			ZINC	Dissolved WQC. Chemical translator of 0.85 applied.							
				0	0	0	0	331.376	338.831	29962.39	
			PHENOL	Dissolved WQC. Chemical translator of 0.978 applied.							
				0	0	0	0	NA	NA	NA	
			2,4,6-TRICHLOROPHENOL	0	0	0	0	460	460	40677.25	
			BENZENE	0	0	0	0	640	640	56594.43	
			TOLUENE	0	0	0	0	1700	1700	150329	
			ALUMINUM	0	0	0	0	750	750	66321.59	
			TOTAL IRON	643	0	0	0	NA	NA	NA	
			MANGANESE	148.9	0	0	0	NA	NA	NA	
			BARIUM	0	0	0	0	21000	21000	1850000	
			BORON	0	0	0	0	8100	8100	716273.3	
			COBALT	0	0	0	0	95	95	8400.735	

**Wasteload Allocations**

RMI	Name	Permit Number						
188.60	Outfall 001	PA0102784						
	VANADIUM	0	0	0	0	510	510	45098.68
	ACETONE	0	0	0	0	450000	450000	3.979E+07
	P-CRESOL	0	0	0	0	800	800	70743.04
	ACRYLAMIDE	0	0	0	0	NA	NA	NA
	Combined Radium 226/228 (pCi/l)	0	0	0	0	NA	NA	NA
	SD-AG29	0	0	0	0	10600	10600	937345.2
	SEP-C8040X	0	0	0	0	600	600	53057.28
	Radioactivity (Total Alpha and Beta)	0	0	0	0	NA	NA	NA

**CFC**

Q7-10:	CCT (min)	720	PMF	0.224	Analysis pH	7	Analysis Hardness	86.441
	Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
	ANTIMONY	0	0	0	0	220	220	133479.4
	ARSENIC	0	0	0	0	150	150	91008.67
		Dissolved WQC. Chemical translator of 1 applied.						
	CADMIUM	0	0	0	0	0.222	0.243	147.392
		Dissolved WQC. Chemical translator of 0.915 applied.						
	COPPER	0	0	0	0	7.907	8.237	4997.483
		Dissolved WQC. Chemical translator of 0.96 applied.						
	LEAD	0	0	0	0	2.147	2.643	1603.553
		Dissolved WQC. Chemical translator of 0.812 applied.						
	MERCURY	0	0	0	0	0.77	0.906	549.621
		Dissolved WQC. Chemical translator of 0.85 applied.						
	NICKEL	0	0	0	0	45.975	46.114	27978.29
		Dissolved WQC. Chemical translator of 0.997 applied.						
	SELENIUM	0	0	0	0	4.6	4.989	3027.042
		Dissolved WQC. Chemical translator of 0.922 applied.						
	SILVER	0	0	0	0	NA	NA	NA
	ZINC	0	0	0	0	104.419	105.901	64252.86
		Dissolved WQC. Chemical translator of 0.986 applied.						
	PHENOL	0	0	0	0	NA	NA	NA
	2,4,6-TRICHLOROPHENOL	0	0	0	0	91	91	55211.93

# Wasteload Allocations

RMI	Name	Permit Number						
188.60	Outfall 001	PA0102784						
	BENZENE	0	0	0	0	130	130	78874.18
	TOLUENE	0	0	0	0	330	330	200219.1
	ALUMINUM	0	0	0	0	NA	NA	NA
	TOTAL IRON	643	0	0	0	1500	1500	2310000
		WQC = 30 day average. PMF = 1.						
	MANGANESE	148.9	0	0	0	NA	NA	NA
	BARIUM	0	0	0	0	4100	4100	2480000
	BORON	0	0	0	0	1600	1600	970759.1
	COBALT	0	0	0	0	19	19	11527.76
	VANADIUM	0	0	0	0	100	100	60672.45
	ACETONE	0	0	0	0	86000	86000	5.217E+07
	P-CRESOL	0	0	0	0	160	160	97075.91
	ACRYLAMIDE	0	0	0	0	NA	NA	NA
	Combined Radium 226/228 (pCi/l)	0	0	0	0	NA	NA	NA
	SD-AG29	0	0	0	0	2120	2120	1280000
	SEP-C8040X	0	0	0	0	120	120	72806.94
	Radioactivity (Total Alpha and Beta)	0	0	0	0	NA	NA	NA

## THH

Q7-10:	CCT (min)	720	PMF	0.224	Analysis pH	NA	Analysis Hardness	NA	
	Parameter		Stream	Stream	Trib	Fate	WQC	WQ	WLA
			Conc	CV	Conc	Coef		Obj	
		(µg/L)		(µg/L)		(µg/L)	(µg/L)	(µg/L)	
	ANTIMONY	0	0	0	0	14	14	8494.143	
	ARSENIC	0	0	0	0	50	50	30336.22	
	CADMIUM	0	0	0	0	NA	NA	NA	
	COPPER	0	0	0	0	NA	NA	NA	

# Wasteload Allocations

RMI	Name	Permit Number						
188.60	Outfall 001	PA0102784						
	LEAD	0	0	0	0	NA	NA	NA
	MERCURY	0	0	0	0	0.05	0.05	30.336
	NICKEL	0	0	0	0	610	610	370101.9
	SELENIUM	0	0	0	0	NA	NA	NA
	SILVER	0	0	0	0	NA	NA	NA
	ZINC	0	0	0	0	NA	NA	NA
	PHENOL	0	0	0	0	21000	21000	1.274E+07
	2,4,6-TRICHLOROPHENOL	0	0	0	0	NA	NA	NA
	BENZENE	0	0	0	0	NA	NA	NA
	TOLUENE	0	0	0	0	6800	6800	4120000
	ALUMINUM	0	0	0	0	NA	NA	NA
	TOTAL IRON	643	0	0	0	NA	NA	NA
	MANGANESE	148.9	0	0	0	1000	1000	516532.1
	BARIUM	0	0	0	0	2400	2400	1450000
	BORON	0	0	0	0	3100	3100	1880000
	COBALT	0	0	0	0	NA	NA	NA
	VANADIUM	0	0	0	0	NA	NA	NA
	ACETONE	0	0	0	0	3500	3500	2120000
	P-CRESOL	0	0	0	0	NA	NA	NA
	ACRYLAMIDE	0	0	0	0	NA	NA	NA
	Combined Radium 226/228 (pCi/l)	0	0	0	0	4	4	2426.898
	SD-AG29	0	0	0	0	NA	NA	NA
	SEP-C8040X	0	0	0	0	NA	NA	NA



JAN 21 2010

NPDES PERMITS BRANCH  
(3WP41)**Amended Aluminum Evaluation:**

While the draft permit was being prepared, it was determined that the technology based effluent limits for aluminum that were included in the previous permit should be included in the new permit to prevent backsliding. Thus, the technology based limits for aluminum of 4.0 mg/l monthly average and 8.0 mg/l instantaneous maximum contained in the existing permit are recommended for the new permit. Based on the DMR data from the previous permit cycle, these permit limits should be achievable. Meanwhile, since the water quality based limit of 42,509 mg/l was calculated based on a partial mix factor (PMF) of 0.032, it is expected that adequate assimilative capacity should be available for the other existing and proposed discharges containing this pollutant.

**Amended Strontium Evaluation:**

It has been indicated that there is an in-stream target value, based on a threshold human health concern, of 4.2 mg/l for strontium. Thus, an additional PENTOXSD modeling run was performed (see Attachment I) to determine what the calculated water quality based limit would need to be to insure that this target value is achieved. Since this limit is relatively large (2,540 mg/l) and the Department does not have any recent data regarding the concentration of strontium expected in Waste Treatment Corporation's effluent, no effluent limits for strontium are recommended for the permit at this time. Conversely, to collect data for future permitting and to determine the treatability of strontium by the existing facility, monthly monitoring for strontium is again recommended for the permit as indicated in the original Water Quality Protection Report for this renewal application.

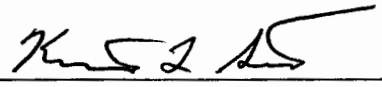
**Amended Ammonia Evaluation:**

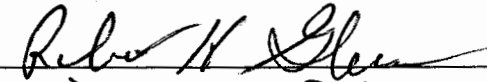
Even though ammonia is not normally considered a "persistent" pollutant, the modeling for this parameter was redone to address any additional load from the City of Warren's wastewater treatment plant. Specifically, the modeling was performed as if the two discharges were combined together at the maximum discharge rates from both Waste Treatment Corporation (0.213 mgd) and Warren's sewage treatment facility (6.5mgd). Based on the results of this revised modeling (see Attachment II), water quality based limits for ammonia are still not recommended for the permit. Conversely, monthly monitoring for ammonia is recommended to collect data for future permitting.

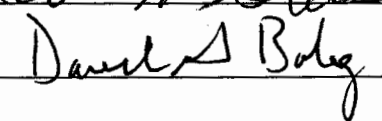
**Amended Osmotic Pressure Evaluation:**

It has been determined that osmotic pressure limits need to be included in the permit. Therefore, even though it is not expected that the osmotic pressure of the discharge will ever approach the calculated water quality based limits for osmotic pressure, it is recommended that the calculated water quality

It has been determined that monitoring for bromide, gross alpha, and combined radium 226/228 is needed. Specifically, monthly monitoring for bromide is recommended due to concerns that oxidizers such as ozone used by drinking water supplies could change the bromide to bromate ( $\text{BrO}_3^-$ ) and thereby create a disinfection byproduct of concern. Meanwhile, biweekly monitoring for the two radiological parameters (combined radium 226/228 and gross alpha) is recommended to collect data for future permitting.

Reviewing OG Engineer  Date 12/23/09

OG Permits Chief  Date 12/24/09

WQ Permits Chief <sup>BH 12/24/09</sup>  Date 12/30/09

# Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
42122	188.60	1184.00	3130.00	0.00000	0.00	<input checked="" type="checkbox"/>

## Stream Data

	LFY	Trib Flow (cfs)	Stream Flow (cfs)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Rch Velocity (fps)	Rch Trav Time (days)	Tributary Hard (mg/L)	pH	Stream Hard (mg/L)	pH	Analysis Hard (mg/L)	pH
Q7-10	0.284	0	0	0	0	0	0	0	100	7	43	7	0	0
Qh		0	0	0	0	0	0	0	100	7	43	7	0	0

## Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
Outfall 001	PA0102784	0	0.213	0	0	0	0	0	0	26400	9

## Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
2,4,6-TRICHLOROPHENOL	106	0	0.5	0.5	0	0	0	0	1	0
ACETONE	7970	0	0.5	0.5	0	0	0	0	1	0
Acrylamide	54	0	0.5	0.5	0	0	0	0	1	0
ALUMINUM	8000	0	0.5	0.5	0	0	0	0	1	0
ANTIMONY	100	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	605	0	0.5	0.5	0	0	0	0	1	0
BARIUM	10000	0	0.5	0.5	0	0	0	0	1	0
BENZENE	396	0	0.5	0.5	0	0	0	0	1	0
BORON	365	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	49	0	0.5	0.5	0	0	0	0	1	0
COBALT	115	0	0.5	0.5	0	0	0	0	1	0
Combined Radium 226/228 (pCi/l)	105.7	0	0.5	0.5	0	0	0	0	1	0
COPPER	757	0	0.5	0.5	0	0	0	0	1	0
DISSOLVED IRON	3000	0	0.5	0.5	0	0	0	0	1	0
LEAD	200	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	2000	0	0.5	0.5	148.9	0	0	0	1	0
MERCURY	0.4	0	0.5	0.5	0	0	0	0	1	0
NICKEL	690	0	0.5	0.5	0	0	0	0	1	0
OSMOTIC PRESSURE	7250	0	0.5	0.5	3	0	0	0	1	0
P-CRESOL	205	0	0.5	0.5	0	0	0	0	1	0
PHENOL	1080	0	0.5	0.5	0	0	0	0	1	0
Radioactivity (Total Alpha and Beta)	70.1	0	0.5	0.5	0	0	0	0	1	0
SD-AG29	7000	0	0.5	0.5	0	0	0	0	1	0
SELENIUM	1600	0	0.5	0.5	0	0	0	0	1	0
SEP-C8040X	4000	0	0.5	0.5	0	0	0	0	1	0
SILVER	880	0	0.5	0.5	0	0	0	0	1	0

VANADIUM  
ZINC

5/0  
420

0

0.5

0.5

0

0

0

0

1

0

42122	142.65	1013.13	4288.80	0.00000	0.00	<input checked="" type="checkbox"/>							
Stream Data													
LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	pH	Stream Hard	pH	Analysis Hard	pH
(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.284	0	0	0	0	0	0	0	0	0	7	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0
Discharge Data													
Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH		
		(mgd)	(mgd)	(mgd)						(mg/L)			
IMOD WWTP	PA	0	0	0	0	0	0	0	0	17900	6.6		
Parameter Data													
Parameter Name		Disc Conc	Trib Conc	Disc Daily CV	Disc Hourly CV	Steam Conc	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc		
		(µg/L)	(µg/L)			(µg/L)					(µg/L)		
2,4,6-TRICHLOROPHENOL		0	0	0.5	0.5	0	0	0	0	1	0		
ACETONE		0	0	0.5	0.5	0	0	0	0	1	0		
Acrylamide		0	0	0.5	0.5	0	0	0	0	1	0		
ALUMINUM		0	0	0.5	0.5	0	0	0	0	1	0		
ANTIMONY		0	0	0.5	0.5	0	0	0	0	1	0		
ARSENIC		0	0	0.5	0.5	0	0	0	0	1	0		
BARIUM		0	0	0.5	0.5	0	0	0	0	1	0		
BENZENE		0	0	0.5	0.5	0	0	0	0	1	0		
BORON		0	0	0.5	0.5	0	0	0	0	1	0		
CADMIUM		0	0	0.5	0.5	0	0	0	0	1	0		
COBALT		0	0	0.5	0.5	0	0	0	0	1	0		
Combined Radium 226/228 (pCi/l)		0	0	0.5	0.5	0	0	0	0	1	0		
COPPER		0	0	0.5	0.5	0	0	0	0	1	0		
DISSOLVED IRON		0	0	0.5	0.5	0	0	0	0	1	0		
LEAD		0	0	0.5	0.5	0	0	0	0	1	0		
MANGANESE		0	0	0.5	0.5	0	0	0	0	1	0		
MERCURY		0	0	0.5	0.5	0	0	0	0	1	0		
NICKEL		0	0	0.5	0.5	0	0	0	0	1	0		
OSMOTIC PRESSURE		0	0	0.5	0.5	0	0	0	0	1	0		
P-CRESOL		0	0	0.5	0.5	0	0	0	0	1	0		
PHENOL		0	0	0.5	0.5	0	0	0	0	1	0		
Radioactivity (Total Alpha and Beta)		0	0	0.5	0.5	0	0	0	0	1	0		
SD-AG29		0	0	0.5	0.5	0	0	0	0	1	0		
SELENIUM		0	0	0.5	0.5	0	0	0	0	1	0		
SEP-C8040X		0	0	0.5	0.5	0	0	0	0	1	0		
SILVER		0	0	0.5	0.5	0	0	0	0	1	0		
Strontium		0	0	0.5	0.5	0	0	0	0	1	0		
TOLUENE		0	0	0.5	0.5	0	0	0	0	1	0		
TOTAL IRON		0	0	0.5	0.5	0	0	0	0	1	0		
VANADIUM		0	0	0.5	0.5	0	0	0	0	1	0		



# Hydrodynamics

SWP Basin

Stream Code:

Stream Name:

18A

42122

ALLEGHENY RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)
-----	-------------------------	----------------------	--------------------------------	-----------------------------------	----------------	---------------	---------------	-------------	-------------------	---------------------------------	--------------

## Q7-10 Hydrodynamics

188.600	888.92	0	888.92	0.32951	0.0007	1.0944	562.85	514.31	1.4436	1.9451	1000+
142.650	1218.0	0	1218.0	NA	0	0	0	0	0	0	NA

## Qh Hydrodynamics

188.600	2807.3	0	2807.3	0.32951	0.0007	1.815	562.85	310.12	2.7484	1.0217	1000+
142.650	3697.0	0	3697.0	NA	0	0	0	0	0	0	NA

# Wasteload Allocations

RMI	Name	Permit Number
188.60	Outfall 001	PA0102784

## AFC

Q7-10: CCT (min) 15 PMF 0.032 Analysis pH 7.004 Analysis Hardness 341.059.

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Strontium	0	0	0	0	NA	NA	NA

## CFC

Q7-10: CCT (min) 720 PMF 0.224 Analysis pH 7 Analysis Hardness 86.441

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Strontium	0	0	0	0	NA	NA	NA

## THH

Q7-10: CCT (min) 720 PMF 0.224 Analysis pH NA Analysis Hardness NA

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Strontium	0	0	0	0	4200	4200	2540000

## CRL

Qh: CCT (min) 720 PMF 0.328

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
Strontium	0	0	0	0	NA	NA	NA



# Recommended Effluent Limitations

SWP Basin

Stream Code:

Stream Name:

18A

42122

ALLEGHENY RIVER

RMI

Name

Permit  
Number

Disc Flow  
(mgd)

188.60

Outfall 001

PA0102784

0.2130

Parameter	Effluent Limit	Governing Criterion	Max. Daily Limit	Most Stringent	
	(µg/L)		(µg/L)	WQBEL (µg/L)	WQBEL Criterion
Strontium	2540000	THH	3970000	2540000	THH

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42122	ALLEGHENY RIVER	188.600	1184.00	3130.00	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.284	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	25.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

#### Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 001	PA0102784	0.0000	6.7130	0.0000	0.000	20.00	9.00

#### Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	53.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	28.80	0.00	0.00	0.70

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42122	ALLEGHENY RIVER	142.650	1013.13	4288.80	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY (cfs)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
Q7-10	0.284	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	0.00	25.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

#### Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
<del>MODAWEP</del> Downstream Reach	PA	0.0000	0.0000	0.0000	0.000	20.00	6.60

#### Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

SWP Basin

Stream Code

Stream Name

18A

42122

ALLEGHENY RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
<b>Q7-10 Flow</b>												
188.600	888.92	0.00	888.92	10.385	0.00070	1.093	566.56	518.54	1.45	1.933	24.94	7.00
<b>Q1-10 Flow</b>												
188.600	568.91	0.00	568.91	10.385	0.00070	NA	NA	NA	1.14	2.473	24.91	7.01
<b>Q30-10 Flow</b>												
188.600	1208.93	0.00	1208.93	10.385	0.00070	NA	NA	NA	1.72	1.630	24.96	7.00

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

**NH3-N Acute Allocations**

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
188.600	Outfall 001	6.77	57.6	6.77	57.6	0	0

**NH3-N Chronic Allocations**

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
188.600	Outfall 001	1.34	28.8	1.34	28.8	0	0

**Dissolved Oxygen Allocations**

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
188.60	Outfall 001	53	53	28.8	28.8	3	3	0	0

SWP BasinStream CodeStream Name

18A

42122

ALLEGHENY RIVER

<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
188.600	6.713	24.942	7.005	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
566.561	1.093	518.536	1.453	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
2.59	0.106	0.33	1.024	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.182	5.366	Tsivoglou	5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
1.933	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.193	2.52	0.27	7.55
	0.387	2.46	0.22	7.55
	0.580	2.40	0.18	7.55
	0.773	2.33	0.15	7.55
	0.966	2.28	0.12	7.55
	1.160	2.22	0.10	7.55
	1.353	2.16	0.08	7.55
	1.546	2.11	0.07	7.55
	1.740	2.05	0.06	7.55
	1.933	2.00	0.05	7.55

SWF Basin

Stream Code

Stream Name

18A

42122

ALLEGHENY RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
188.600	Outfall 001	PA0102784	6.713	CBOD5	53		
				NH3-N	28.8	57.6	
				Dissolved Oxygen			3



While the draft permit was being prepared, the Department determined that changes to permits for facilities that accept high-TDS wastewater need to be made (see November 3, 2009 e-mail from John Wetherell in Attachment I). Specifically, the Department has determined that TDS allocations will be based on the annual Q(7-10) flow rather than monthly Q(7-10) flows, that limits for osmotic pressure have to be added for all permits, and that WET testing requirement will be added to all such permits. Thus, this WQPR Addendum was developed to address these changes.

#### **TDS Allocations:**


Based on the attached November 5, 2009 e-mail (see Attachment II) from Christopher Whiteash of the Department's Office of Water Management, the TDS allocation available to Waste Treatment Corporation based on the annual Q(7-10) is 276,363 pounds per day. Since this concentration is greater than the baseline TDS load of 148,276 pounds per day calculated in the original WQPR, the baseline TDS load is still recommended for inclusion in the permit. Thus, no changes to the TDS limits recommended in the original WQPR are needed.

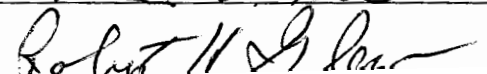
#### **Osmotic Pressure Evaluation:**

A new PENTOXSD run was performed to calculate the applicable water quality based limit for osmotic pressure (see Attachment III). For this PENTOXSD run, a background osmotic pressure of 3 mOs/kg was assumed based on the background TDS concentration of 111 mg/l concentration from WQN 805 (see Attachment V from the original WQPR) and an approximate ratio of TDS to osmotic pressure of 1800 mg/l to 50 mOs/kg. Since the limit of 28,519 mOs/kg for osmotic pressure calculated using PENTOXSD is greater than three times the maximum expected osmotic pressure of the discharge based on the last five years of DMR data, it is not recommended that effluent limits for osmotic pressure be included in the permit. Conversely, it is recommended that monthly monitoring for osmotic pressure be included in the permit.

#### **WET Testing Requirements:**

As directed in the attached e-mail, WET testing requirements will be added to the draft permit. Specifically, a special condition (see Attachment IV) requiring the permittee to begin conducting acute WET testing within 60 days of permit issuance will be included in the permit. This special condition will require semi-annual acute WET testing and if the results of a valid test indicate a  $LC_{50}$  less than the target in-stream waste concentration of 3.8 (equal to the  $IWC_{a}/0.3$ ), the permittee will be required to conduct a Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE). Conversely, once four consecutive WET tests result in  $LC_{50}$ 's that exceed the TIWC, the requirement to conduct semi-annual sampling will end. The calculations for deriving the acute in-stream waste concentration ( $IWC_{a}$ ) are included in Attachment V.

Reviewing OG Engineer  Date 11/9/09

OG Permits Chief  Date 11/12/09

To: Mincic, Kareen; Leone, Donald; Balog, David; Miller, Chad (DEP); Brundage, Maria; Sohan; Bebenek, Maria  
Cc: Whiteash, Christopher; Starosta, Thomas P; Furlan, Ronald; Scott, Kenneth  
Subject: High TDS Marcellus Shale Permits

Based on comments received related to some of the draft permits that the regions have issued, we need to make some changes to permit conditions for CWTs and POTWs that accept or propose to accept high-TDS (Marcellus) wastewater. Any new draft or final permit should reflect these changes. Please make your permit writers aware of the new guidelines.

These changes are:

1. WLAs for all pollutants will be based on annual Q7-10. We had proposed TDS allocations based on monthly Q7-10, and draft permits have been issued that way, but the final permit allocations should be changed to those based on annual Q7-10. We will issue revised allocations as necessary. Contact Chris Whiteash or Tom Starosta if you need a number now.
2. Limits for osmotic pressure should be added to all permits. PENTOXSD can be used for this purpose. Contact Chris Whiteash or Tom Starosta if you want guidance on how to handle the background osmotic pressure. We will recommend a value.
3. A WET testing requirement will be added. We will issue recommended language to support this requirement. Contact Chris Whiteash on this issue.
4. Continue to send draft permits (or redrafts) for High TDS Oil and Gas related permits (POTWs and CWTs) to CO for review.

Dave,

You sent an e-mail with questions about this. I think the above answers your questions. If not, let me know.

John Wetherell | Environmental Eng Manager  
Department of Environmental Protection  
Rachel Carson State Office Building  
400 Market Street | Harrisburg, PA 17101  
Phone: 717.783.2938 | Fax: 717.772.5156  
[www.depweb.state.pa.us](http://www.depweb.state.pa.us)

**To:** Scott, Kenneth; Wetherell, John  
**Cc:** Gilson, Ricardo; Balog, David; Gleeson, Robert; Lobins, Craig; Starosta, Thomas P; Furlan, Ronald  
**Subject:** RE: High TDS Marcellus Shale Permits

I don't see a need to create another spreadsheet for this simple calculation. However, I pulled data from the past spreadsheet, which contains both the monthly and annual Q7-10 limits:

- 1) I pulled the annual Q7-10 at Emlenton from cell G23 from the "Flow Data" worksheet, which is 1,801 cfs.
- 2) I pulled the TDS Concentration at Q7-10 from cell I22 from the "Flow Data" worksheet, which is 159 mg/L. As in the prior monthly allocations, we assume the TDS concentration at Kennerdell (WQN 867) is equal to the concentration of TDS at Emlenton.
- 3) Total allowable TDS Load at Emlenton is  $1801 * 5.4 * (500 - 159) = 3,316,361$  lbs/day based on protecting the water supply at Emlenton to a concentration of 500 mg/L.
- 4) We are allocating 50% of this load and dividing it by six facilities, which equals 276,363. I'm certain I carried some decimals during the first calculation, so please round appropriately.

Attached is the old spreadsheet for your region.



NWRO Assimilative  
Capacity Ana...

-----Original Message-----

**From:** Scott, Kenneth  
**Sent:** Thursday, November 05, 2009 12:36 PM  
**To:** Wetherell, John  
**Cc:** Gilson, Ricardo; Balog, David; Gleeson, Robert; Whiteash, Christopher; Lobins, Craig; Starosta, Thomas P; Furlan, Ronald  
**Subject:** RE: High TDS Marcellus Shale Permits

John,

For the TDS allocations, I was hoping to get a copy of the calculations that Chris used to develop the 276,557 lbs/day final allocation. I figured he had it in a spreadsheet similar to the one he did before for monthly limits.

Thanks Again,

Ken

-----Original Message-----

**From:** Wetherell, John  
**Sent:** Thursday, November 05, 2009 11:37 AM  
**To:** Scott, Kenneth  
**Cc:** Gilson, Ricardo; Balog, David; Gleeson, Robert; Whiteash, Christopher; Lobins, Craig; Starosta, Thomas P; Furlan, Ronald

mOs/kg to account for possible future upstream sources of OP (TDS) in the watershed. If you don't believe this is an issue then based on your judgment you can use 3 mOs/kg.

Based on discussions with EPA, the PFBC and numerous comments to the effect that WET testing would be a useful way to account for undetermined pollutants and possible synergistic effects the Department has decided to include WET testing as a requirement. See page 94 of the EPA Permit writers manual where it says "The WET approach is useful for complex effluents where it may be infeasible to identify and regulate all toxic pollutants in the discharge or where chemical-specific pollutant limits are set, but synergistic effects are suspected to be problematic. The WET approach allows the permit writer to be protective of the narrative 'no toxics in toxic amounts' criterion that is applicable to all waters of the United States and implement numeric criteria for toxicity." If you need the language to include for WET testing Chris can help you out with that.

John Wetherell | Environmental Eng Manager  
Department of Environmental Protection  
Rachel Carson State Office Building  
400 Market Street | Harrisburg, PA 17101  
Phone: 717.783.2938 | Fax: 717.772.5156  
[www.depweb.state.pa.us](http://www.depweb.state.pa.us)

-----Original Message-----

**From:** Scott, Kenneth  
**Sent:** Thursday, November 05, 2009 9:16 AM  
**To:** Whiteash, Christopher  
**Cc:** Gilson, Ricardo; Balog, David; Gleeson, Robert; Lobins, Craig; Wetherell, John; Starosta, Thomas P  
**Subject:** RE: High TDS Marcellus Shale Permits

Chris,

Could you please send us the basis for the recommended final TDS allocation, the background osmotic pressure, and for requiring WET testing in CWT permits? I don't believe we can use these numbers or put requirements in a permit without a basis.

For osmotic pressure, I was thinking that 3 mOs/kg should be the background based on the previously provided Q7-10 TDS concentration from WQN 805 of 111 mg/l and a TDS to osmotic pressure of 1800 to 50. The 111 mg/l TDS concentration was the Q7-10 TDS concentration previously provided with the spreadsheet titled Waste Treatment Corporation Local Water Quality Standard and Proposed TDS WLA.

Thanks,

Ken

-----Original Message-----

**From:** Whiteash, Christopher  
**Sent:** Wednesday, November 04, 2009 1:10 PM  
**To:** Scott, Kenneth; Starosta, Thomas P  
**Cc:** Gilson, Ricardo; Balog, David; Gleeson, Robert; Lobins, Craig; Wetherell, John  
**Subject:** RE: High TDS Marcellus Shale Permits

1. Waste Treatment Corporation is still controlled by the allocation at Emlenton whose TDS load is calculated using the annual Q7-10. The final allocation is 276,557 lbs/day.
2. The recommended background value for osmotic pressure is 5 mOsm/Kg. There is no

performed.

Please contact Tom or myself with questions or additional information requests.

-----Original Message-----

**From:** Scott, Kenneth  
**Sent:** Tuesday, November 03, 2009 2:31 PM  
**To:** Whiteash, Christopher; Starosta, Thomas P  
**Cc:** Gilson, Ricardo; Balog, David; Gleeson, Robert; Lobins, Craig; Wetherell, John  
**Subject:** FW: High TDS Marcellus Shale Permits

Gentlemen:

Based on the below e-mail, we need the following so we can issue a draft permit for Waste Treatment Corporation's existing discharge to the Allegheny River in Warren, Warren County:

1. A final allocation for TDS based on annual Q(7-10) for Waste Treatment Corporation's discharge.
2. A recommended background value to use for the evaluation of osmotic pressure for Waste Treatment Corporation's discharge to the Allegheny River. Furthermore, if there is guidance on how to handle background osmotic pressure, we will need a copy of that also.
3. Details regarding the WET Testing requirements that are now supposed to be included in permits for CWTs. In addition, we need the language to support this new requirement.

If you have any questions or need additional information from us, let me know. Your timely response to the above will be appreciated as we were planning to issue a draft permit to Waste Treatment Corporation very soon.

Thanks,

Ken Scott

-----Original Message-----

**From:** Wetherell, John  
**Sent:** Tuesday, November 03, 2009 1:41 PM  
**To:** Mildic, Kareen; Leone, Donald; Balog, David; Miller, Chad (DEP); Brunamonti, Michael; Garg, Sohan; Bebenek, Maria  
**Cc:** Whiteash, Christopher; Starosta, Thomas P; Furlan, Ronald; Scott, Kenneth  
**Subject:** High TDS Marcellus Shale Permits

Based on comments received related to some of the draft permits that the regions have issued, we need to make some changes to permit conditions for CWTs and POTWs that accept or propose to accept high-TDS (Marcellus) wastewater. Any new draft or final permit should reflect these changes. Please make your permit writers aware of the new guidelines.

These changes are:

1. WLAs for all pollutants will be based on annual Q7-10. We had proposed TDS allocations based on monthly Q7-10, and draft permits have been issued that way, but the final permit allocations should be changed to those based on annual Q7-10. We will issue revised allocations as necessary. Contact Chris Whiteash or Tom Starosta if you need a number now.
2. Limits for osmotic pressure should be added to all permits. PENTOXSD can be used for this purpose. Contact Chris Whiteash or Tom Starosta if

You sent an e-mail with questions about this. I think the above answers your questions.  
If not, let me know.

John Wetherell | Environmental Eng Manager  
Department of Environmental Protection  
Rachel Carson State Office Building  
400 Market Street | Harrisburg, PA 17101  
Phone: 717.783.2938 | Fax: 717.772.5156  
[www.depweb.state.pa.us](http://www.depweb.state.pa.us)

# Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
42122	188.60	1184.00	3130.00	0.00000	0.00	<input checked="" type="checkbox"/>

## Stream Data

LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	pH	Stream Hard	pH	Analysis Hard	pH
(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.284	0	0	0	0	0	0	100	7	43	7	0	0
Qh		0	0	0	0	0	0	100	7	43	7	0	0

## Discharge Data

Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH
		(mgd)	(mgd)	(mgd)						(mg/L)	
Outfall 001	PA0102784	0	0.213	0	0	0	0	0	0	26400	9

## Parameter Data

Parameter Name	Disc Conc	Trib Conc	Disc Daily CV	Disc Hourly CV	Steam Conc	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc
	(µg/L)	(µg/L)			(µg/L)					(µg/L)
2,4,6-TRICHLOROPHENOL	106	0	0.5	0.5	0	0	0	0	1	0
ACETONE	7970	0	0.5	0.5	0	0	0	0	1	0
Acrylamide	54	0	0.5	0.5	0	0	0	0	1	0
ALUMINUM	8000	0	0.5	0.5	0	0	0	0	1	0
ANTIMONY	100	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	605	0	0.5	0.5	0	0	0	0	1	0
BARIUM	10000	0	0.5	0.5	0	0	0	0	1	0
BENZENE	396	0	0.5	0.5	0	0	0	0	1	0
BORON	365	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	49	0	0.5	0.5	0	0	0	0	1	0
COBALT	115	0	0.5	0.5	0	0	0	0	1	0
Combined Radium 226/228 (pCi/l)	105.7	0	0.5	0.5	0	0	0	0	1	0
COPPER	757	0	0.5	0.5	0	0	0	0	1	0
DISSOLVED IRON	3000	0	0.5	0.5	0	0	0	0	1	0
LEAD	200	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	2000	0	0.5	0.5	148.9	0	0	0	1	0
MERCURY	0.4	0	0.5	0.5	0	0	0	0	1	0
NICKEL	690	0	0.5	0.5	0	0	0	0	1	0
OSMOTIC PRESSURE	7250	0	0.5	0.5	3	0	0	0	1	0
P-CRESOL	205	0	0.5	0.5	0	0	0	0	1	0
PHENOL	1080	0	0.5	0.5	0	0	0	0	1	0
Radioactivity (Total Alpha and Beta)	70.1	0	0.5	0.5	0	0	0	0	1	0
SD-AG29	7000	0	0.5	0.5	0	0	0	0	1	0
SELENIUM	1600	0	0.5	0.5	0	0	0	0	1	0
SEP-C8040X	4000	0	0.5	0.5	0	0	0	0	1	0
SILVER	880	0	0.5	0.5	0	0	0	0	1	0

ZINC

420

0

0.5

0.5

0

0

0

0

1

0



42122	142.65	1013.13	4288.80	0.00000	0.00	PC		✓					
Stream Data													
LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	pH	Stream Hard	pH	Analysis Hard	pH
(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.284	0	0	0	0	0	0	0	0	0	7	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0
Discharge Data													
Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH		
		(mgd)	(mgd)	(mgd)						(mg/L)			
IMOD WWTP	PA	0	0	0	0	0	0	0	0	17900	6.6		
Parameter Data													
Parameter Name	Disc Conc	Trib Conc	Disc Daily CV	Disc Hourly CV	Steam Conc	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc			
	(µg/L)	(µg/L)			(µg/L)					(µg/L)			
2,4,6-TRICHLOROPHENOL	0	0	0.5	0.5	0	0	0	0	1	0			
ACETONE	0	0	0.5	0.5	0	0	0	0	1	0			
Acrylamide	0	0	0.5	0.5	0	0	0	0	1	0			
ALUMINUM	0	0	0.5	0.5	0	0	0	0	1	0			
ANTIMONY	0	0	0.5	0.5	0	0	0	0	1	0			
ARSENIC	0	0	0.5	0.5	0	0	0	0	1	0			
BARIUM	0	0	0.5	0.5	0	0	0	0	1	0			
BENZENE	0	0	0.5	0.5	0	0	0	0	1	0			
BORON	0	0	0.5	0.5	0	0	0	0	1	0			
CADMIUM	0	0	0.5	0.5	0	0	0	0	1	0			
COBALT	0	0	0.5	0.5	0	0	0	0	1	0			
Combined Radium 226/228 (pCi/l)	0	0	0.5	0.5	0	0	0	0	1	0			
COPPER	0	0	0.5	0.5	0	0	0	0	1	0			
DISSOLVED IRON	0	0	0.5	0.5	0	0	0	0	1	0			
LEAD	0	0	0.5	0.5	0	0	0	0	1	0			
MANGANESE	0	0	0.5	0.5	0	0	0	0	1	0			
MERCURY	0	0	0.5	0.5	0	0	0	0	1	0			
NICKEL	0	0	0.5	0.5	0	0	0	0	1	0			
OSMOTIC PRESSURE	0	0	0.5	0.5	0	0	0	0	1	0			
P-CRESOL	0	0	0.5	0.5	0	0	0	0	1	0			
PHENOL	0	0	0.5	0.5	0	0	0	0	1	0			
Radioactivity (Total Alpha and Beta)	0	0	0.5	0.5	0	0	0	0	1	0			
SD-AG29	0	0	0.5	0.5	0	0	0	0	1	0			
SELENIUM	0	0	0.5	0.5	0	0	0	0	1	0			
SEP-C8040X	0	0	0.5	0.5	0	0	0	0	1	0			
SILVER	0	0	0.5	0.5	0	0	0	0	1	0			
TOLUENE	0	0	0.5	0.5	0	0	0	0	1	0			
TOTAL IRON	0	0	0.5	0.5	0	0	0	0	1	0			
VANADIUM	0	0	0.5	0.5	0	0	0	0	1	0			
ZINC	0	0	0.5	0.5	0	0	0	0	1	0			

# Hydrodynamics

SWP Basin

Stream Code:

Stream Name:

18A

42122

ALLEGHENY RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)
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## Q7-10 Hydrodynamics

188.600	888.92	0	888.92	0.32951	0.0007	1.0944	562.85	514.31	1.4436	1.9451	1000+
142.650	1218.0	0	1218.0	NA	0	0	0	0	0	0	NA

## Qh Hydrodynamics

188.600	2807.3	0	2807.3	0.32951	0.0007	1.815	562.85	310.12	2.7484	1.0217	1000+
142.650	3697.0	0	3697.0	NA	0	0	0	0	0	0	NA

# Wasteload Allocations

RMI	Name	Permit Number
188.60	Outfall 001	PA0102784

## AFC

Q7-10:	CCT (min)	15	PMF	0.032	Analysis pH	7.004	Analysis Hardness	341.059
	Parameter		Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)
								WLA (µg/L)
	OSMOTIC PRESSURE		3	0	0	0	NA	NA

## CFC

Q7-10:	CCT (min)	720	PMF	0.224	Analysis pH	7	Analysis Hardness	86.441
	Parameter		Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)
								WLA (µg/L)
	OSMOTIC PRESSURE		3	0	0	0	50	50

Units for WLA and Effluent Limit = Milliosmoles per kilogram.

## THH

Q7-10:	CCT (min)	720	PMF	NA	Analysis pH	NA	Analysis Hardness	NA
	Parameter		Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)
								WLA (µg/L)
	OSMOTIC PRESSURE		3	0	0	0	NA	NA

## CRL

Qh:	CCT (min)	720	PMF	0.328				
	Parameter		Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)
								WLA (µg/L)
	OSMOTIC PRESSURE		3	0	0	0	NA	NA

# Recommended Effluent Limitations

SWP Basin

18A

Stream Code:

42122

Stream Name:

ALLEGHENY RIVER

RMI	Name	Permit Number	Disc Flow (mgd)
188.60	Outfall 001	PA0102784	0.2130

Parameter	Effluent Limit	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent	
	(µg/L)			WQBEL (µg/L)	WQBEL Criterion
OSMOTIC PRESSURE	7250	INPUT	11311.17	28519.05	CFC

## 5. ACUTE WHOLE EFFLUENT TOXICITY MONITORING CONDITION

### A. General Requirements

The permittee shall begin conducting acute whole effluent toxicity (WET) tests in accordance with the appropriate test protocols and guidance described in Section E, Test Conditions and Methods, below. The permittee shall collect discharge samples and perform WET tests to generate acute survival data for the cladoceran, Ceriodaphnia dubia, and the fathead minnow, Pimephales promelas. The results will be reported as a lethal concentration or LC<sub>50</sub> with a 95% confidence interval. The mortality data from the acute toxicity tests shall be plotted on semi-log graph paper with the y-axis for effluent concentration (expressed as a percentage) and the x-axis for observed mortality (expressed as a percentage).

### B. Test Frequency

1. Acute WET testing shall be conducted semi-annually starting within 60 days of permit issuance and continue until four tests have been completed. If all four acute tests demonstrate an LC<sub>50</sub> greater than the TIWCa (Target Instream Waste Concentration acute) of 3.8 (The TIWCa is the IWCa /0.3), the permittee may discontinue WET testing for the remainder of the permit cycle.
2. If any of the semi-annual acute tests are determined to be invalid by the permittee or their consultant because the proper acute test acceptability criteria were not met or the proper QA/QC conditions were not followed, the permittee shall immediately perform a retest and document the reason(s) for the determination that the original test was invalid.
3. If any valid acute test results in an LC50 less than the TIWCa (Target Instream Waste Concentration acute which is the IWCa/0.3) of 3.8, the permittee shall, within 30 days of the test completion, submit a report of the acute test results to the Department and begin a Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE). The TIE/TRE evaluates the possible causes of the effluent toxicity; the possible sources of the causative agents; possible control options to reduce or eliminate the effluent toxicity; and implementation of controls.

Within 90 days of submitting the acute test report, the permittee must submit either a written report on the results of the TIE/TRE or, if the TIE/TRE is not complete, a schedule for completing the TIE/TRE. The schedule must contain specific timeframes for completing major elements of the TIE/TRE.

During the period the permittee is conducting the TIE/TRE, WET testing will

permit condition, documenting the changes instituted to achieve the toxicity reduction. Documentation may include, but is not limited to: the results of TIE/TRE, pretreatment changes, plant operation and maintenance changes, design changes, or establishment of and compliance with chemical limits that address the effluent toxicity.

The Department will decide if the toxicity has been properly addressed based upon the permittee's report and completion of four consecutive WET tests with LC50s greater than the TIWCa of 3.8 subsequent to institution of the controls specified in the report. If the permittee does not identify the sources of toxicity or adequately control them, a WETT limit, adequate to protect the aquatic community, will be imposed for the next permit cycle.

C. Toxicity Identification Evaluation /Toxicity Reduction Evaluation (TIE/TRE)

The TIE/TRE must be conducted in accordance with EPA's guidance in "Methods for Aquatic Toxicity Identification Evaluations, Phase I (EPA-600-R-91-003 February 1991), Phase II (EPA-600-R-92-080, September 1993), and Phase III (EPA-600-R-92-081, September 1993) or current approved TIE/TRE protocols.

D. Sample Collection

For each acute testing event, an 8-hour flow proportioned composite sample shall be collected. The individual sample aliquots used to make-up the composite sample must be collected at a frequency of not greater than every two hours and flow proportioned. The sample must be collected at the NPDES permit sampling point. The permittee shall collect chemical and physical data on the acute effluent samples specified in the NPDES permit.

E. Test Conditions and Methods

The permittee shall follow the DEP "WETT Acute Quality Assurance/Quality Control Protocols", attached and included in this permit condition, supplemented by Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA-821-R-02-012 (5<sup>th</sup> Ed., Oct. 2002) or the most recent version. The dilution series shall be 15.2%, 7.6%, 3.8%, 1.9%, 1%, and 0% effluent.

F. Chemical Analyses

The chemistry tests shall include pH, conductivity, total alkalinity, total hardness, total residual chlorine, total ammonia (unionized ammonia), dissolved oxygen and temperature. Chemical analyses as described in the EPA Methods (above) shall



June 23, 2009

Mr. Kenneth L. Scott, P.E.  
Pennsylvania Department of Environmental Protection  
Oil and Gas Management Program  
230 Chestnut Street  
Meadville, PA 16335

RE: Waste Treatment Corporation, Warren, Pennsylvania  
Submittal of NPDES Permit Renewal with Amendment Application  
NPDES Permit Number PA0102784

Dear Mr. Scott:

In October of 2008, Waste Treatment Corporation submitted an application for the renewal and amendment of the National Pollutant Discharge Elimination System (NPDES) Permit Number PA0102784. The amendment involved the conversion of the existing NPDES permit from a Centralized Waste Treatment facility to an Oil & Gas Treatment facility as well as an increase in flow of Outfall 001 from 213,000 gpd to 400,000 gpd. Accordingly, Waste Treatment Corporation has decided not to pursue the increase in flow of Outfall 001 from 213,000 gpd to 400,000 gpd. Waste Treatment Corporation's intent is to continue operation with the existing permitted discharge limit of 213,000 gpd.

Should you have any further questions or require any additional information, please feel free to contact me at (814) 726-1500.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael E. Arnold', written over a horizontal line.

Michael E. Arnold  
Operations Vice President

cc: Chester Engineers

RECEIVED





May 15, 2009

Chester Ref No. 08-6330-I-02

Mr. Kenneth L. Scott, P.E.  
Pennsylvania Department of Environmental Protection  
Oil and Gas Management Program  
230 Chestnut Street  
Meadville, PA 16335

RE: Waste Treatment Corporation, Warren, Pennsylvania  
Submittal of NPDES Permit Renewal with Amendment Application  
NPDES Permit Number PA0102784

Dear Mr. Scott:

As per the second technical deficiency letter dated March 11, 2009, for the renewal and modification of NPDES Permit No. PA0102784, the following are responses to the deficiency comments:

1. Maximum in-system and effluent concentrations in appropriate concentration units, such as mg/l, need to be provided on page 3 of Module 1 for the chemical additives used in the treatment process. Since these concentrations are dependent on the flow rate through the facility, the Department cannot accurately derive the in-system and effluent concentrations from the provided lbs/hr data without knowing how this usage rate is changed with flow.

*Page 3 of Module 1 has been revised to include the appropriate maximum in-system and effluent concentrations in appropriate concentration units (mg/l). Please note that the concentrations are listed as to the current permitted flow and the requested increased permitted flow (0.400 mgd).*

2. The provided Treatment Units General Flow Schematics drawing (sheet 2 of 7) needs revised to be consistent with the latest revisions submitted for the pending application to modify Water Quality Management Permit No. 6286201-T1. Specifically, the latest revisions submitted with the application to modify Water Quality Management Permit No. 6286201-T1 indicate that the wastewater either flows directly to the effluent tank or through the sand filter to the effluent tank.

*Sheet 2 of 7 was revised by Northwest Engineering and a copy has been included. Dependent upon the clarifier effluent quality, the wastewater will either flow directly to the effluent tank or through the sand filter for polishing (solids removal) and then to the effluent tank.*



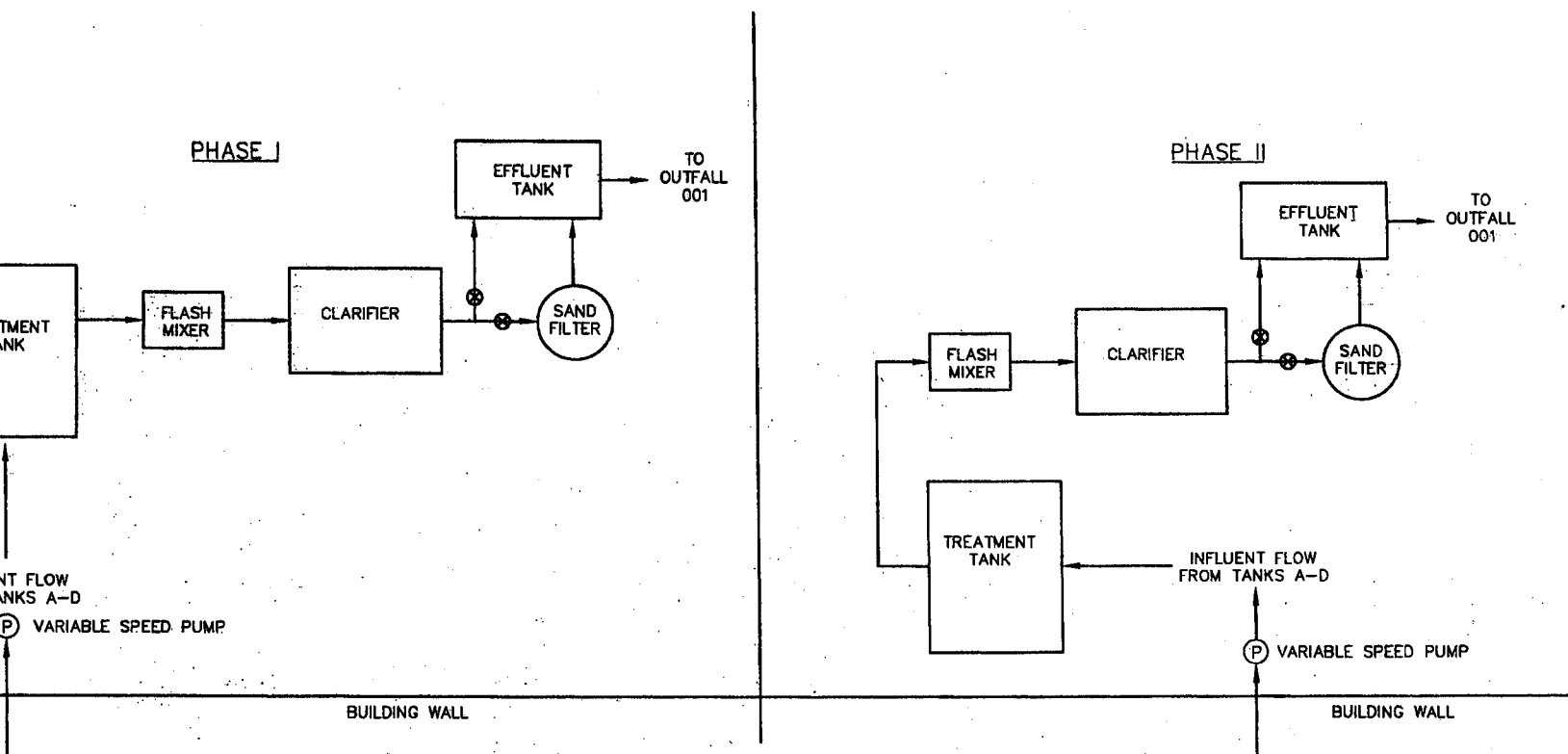
# ATION AND ANALYSIS OF EFFLUENT QUALITY FOR OTHER POTENTIALLY TOXIC POLLUTANTS

Information on Chemical Additives \*See Attached MSDS Sheets

Read instructions carefully and use the tabular format to present the required information)

Chemical Substance or Compound Trade Name or Specific Ingredients	Manufacturer Name and Address	Average & Maximum Usage Rate lbs/day	Concentration			Lowest Possible Analytical Detection Level (µg/L)	Whole Product 96 Hr LC50 (mg/L) and species <sup>(1)</sup>	Whole Product 48 Hr LC50 (mg/L) and species <sup>(1)</sup>
			In-system	Effluent	Units			
Hydrochloric Acid	Bellmine Graymont 965 E. College Ave. Pleasant Gap, PA 16823	(0.213mgd) (0.400 mgd) 2,250 4,225 2,500 4,695	1,742	1,407	mg/l	pH Control	N.A.	N.A.
Sulfuric Acid	PVS Chemical Solutions 55 Lee Street Buffalo, NY 14210	(0.213mgd) (0.400 mgd) 500 939 675 1,268	387	380	mg/l	pH Control	N.A.	N.A.
Phosphoric Acid	PPG Industries, Inc. One PPG Place Pittsburgh, PA 15272	(0.213mgd) (0.400 mgd) 440 826 675 1,268	341	380	mg/l	pH Control	282 mg/l (Mosquito Fish)	3.6 mg/l (Bluegill)
Polymer 1 (AG29)	Sal Chemical 3036 Birch Drive Weirton, WV 26062	(0.213mgd) (0.400 mgd) 6 11 9 17	5	5	mg/l	N.A.	230 mg/l (Oncorhynchus Mykiss)	212 mg/l (Daphnia Magna)
Polymer 2 (P-C8040X)	Sal Chemical 3036 Birch Drive Weirton, WV 26062	(0.213mgd) (0.400 mgd) 1.5 3 5 9	1	3	mg/l	N.A.	18 mg/l (Rainbow Trout)	12 mg/l (Daphnia Magna)
Sodium Peroxide Solution	Olin Chlor Alkali 2400 Buffalo Avenue P.O. Box 748 Niagara Falls, NY 14302	(0.213mgd) (0.400 mgd) 30 56 49.5 93	23	28	mg/l	N.A.	125 mg/l (Mosquito Fish)	99 mg/l (Bluegill)
MSDS sheets for additional information								
Permitted Limit 3 MGD	*Proposed Limit 0.400 MGD							

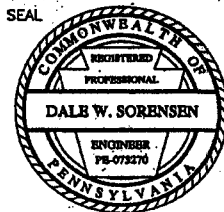




**TREATMENT UNITS GENERAL FLOW SCHEMATICS**  
NOT TO SCALE

st Engineering, Inc.  
ate and Civil Engineers  
Pennsylvania 18881  
(610) 484-8804

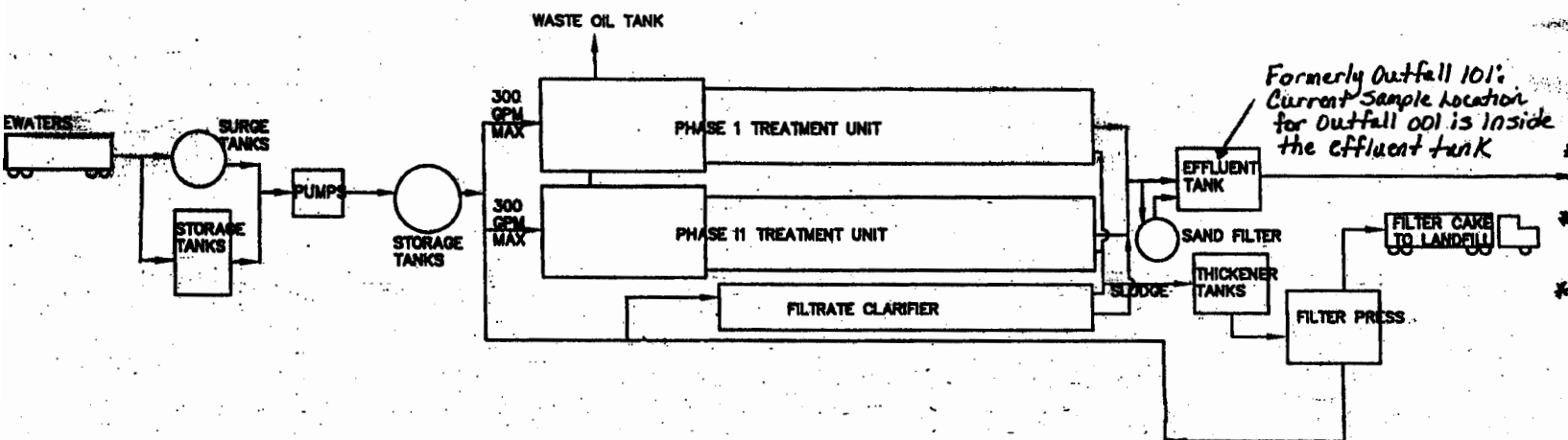
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PROJECT DIRECTORY: 28027



**WASTE TREATMENT CORP  
WASTEWATER TREATMENT  
PLANT  
WARREN, PENNSYLVANIA  
TREATMENT FLOW SCHEMATICS**

DRAWING SCALE:





est-Engineering, Inc.  
Mechanical and Civil Engineers  
Warren, Pennsylvania 16061  
(814) 484-8804

DESIGN BY:  
TJS

CHECKED BY:  
RV

DRAWING FILE NAME:  
28027DES  
PROJECT DIRECTORY:  
28027

SEAL



WASTE TREATMENT CORP  
WASTEWATER TREATMENT  
PLANT  
WARREN, PENNSYLVANIA  
FLOW DIAGRAM

DRAWING SCALE:





June 10, 2009

Chester Ref No. 08-6330-I-02

Mr. Kenneth L. Scott, P.E.  
Pennsylvania Department of Environmental Protection  
Oil and Gas Management Program  
230 Chestnut Street  
Meadville, PA 16335

RE: Waste Treatment Corporation, Warren, Pennsylvania  
Submittal of NPDES Permit Renewal with Amendment Application  
NPDES Permit Number PA0102784

Dear Mr. Scott:

As per our phone conversation on Monday, June 8, 2009, in reference to Waste Treatment Corporation's National Pollutant and Discharge Elimination System (NPDES) Permit Renewal and Amendment Application submittal, please find enclosed two copies of the following:

- Revised Module 1 (Page 3);
- Sheet 2 of 7; and
- Sheet 6 of 7.

Should you have any questions regarding the information that is enclosed or require any additional information, please feel free to contact me at (412) 809-6135 or via email at [ccasto@chesterengineers.com](mailto:ccasto@chesterengineers.com).

Respectfully submitted,



Courtney F. Casto  
Project Manager

CFC/blm  
Enclosures

cc (w/enc.): Mr. Michael Arnold, Waste Treatment Corporation  
Central Records

RECEIVED



# ATION AND ANALYSIS OF EFFLUENT QUALITY FOR OTHER POTENTIALLY TOXIC POLLUTANTS

Information on Chemical Additives \*See Attached MSDS Sheets

Read instructions carefully and use the tabular format to present the required information)

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			In-system	Effluent	Units			
Hydrated me	Bellmine Graymont 965 E. College Ave. Pleasant Gap, PA 16823	(0.213mgd) (0.400 mgd) 2,250 4,225 2,500 4,695	1,936	1,407	mg/l	pH Control	N.A.	
Sulfuric Acid	PVS Chemical Solutions 55 Lee Street Buffalo, NY 14210	(0.213mgd) (0.400 mgd) 500 939 675 1,268	523	380	mg/l	pH Control	N.A.	
Sulfuric Acid	PPG Industries, Inc. One PPG Place Pittsburgh, PA 15272	(0.213mgd) (0.400 mgd) 440 826 675 1,268	523	380	mg/l	pH Control	282 mg/l (Mosquito Fish)	3 (E)
Polymer 1 (D-AG29)	Sal Chemical 3036 Birch Drive Weirton, WV 26062	(0.213mgd) (0.400 mgd) 6 11 9 17	7	5	mg/l	N.A.	230 mg/l (Oncorhynchus Mykiss)	2 (C M)
Polymer 2 (EP-C8040X)	Sal Chemical 3036 Birch Drive Weirton, WV 26062	(0.213mgd) (0.400 mgd) 1.5 3 5 9	4	3	mg/l	N.A.	18 mg/l (Rainbow Trout)	1 (C M)
Sodium Hydroxide Solution	Olin Chlor Alkali 2400 Buffalo Avenue P.O. Box 748 Niagara Falls, NY 14302	(0.213mgd) (0.400 mgd) 30 56 49.5 93	38	28	mg/l	N.A.	125 mg/l (Mosquito Fish)	9 (I)
See MSDS sheets for additional information								
Permitted Limit 213 MGD	*Proposed Limit 0.400 MGD							RE
								JUN

